

HOW DO CARE TYPES AND INDIVIDUAL DIFFERENCES CONTRIBUTE  
TO EMOTION UNDERSTANDING SKILLS OF CHILDREN UNDER THE  
CARE OF SOCIAL SERVICES?

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## **ABSTRACT**

### **HOW DO CARE TYPES AND INDIVIDUAL DIFFERENCES CONTRIBUTE TO EMOTION UNDERSTANDING SKILLS OF CHILDREN UNDER THE CARE OF SOCIAL SERVICES?**

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Early caregiving environment has a great influence on young children's socio-emotional development. It has been found that young children who have been raised in institutional settings are at risk for deficits in their emotion understanding skills. Research findings also suggested that harmful effects of early care environment would continue into foster care or adoption (Pears & Fisher, 2005; Luke & Banerjee, 2012). Indeed, researchers have investigated developmental differences in individuals' ability to understand emotions. The developmental changes are found as usually occurring between the second and the fifth year of life (Dunn & Cutting, 1999). Besides, temperamental characteristics are found to play a crucial role in emotion understanding in young children (Stifter, Cipriano, Conway & Kelleher, 2008).

In Turkey, currently several different care types exist under the government's child protection services. There is a gap in the literature about the effects of different care types on children's emotion understanding and how these effects vary based on the different temperamental characteristics of children. Therefore, the present study explores emotion understanding abilities in 3 to 5 year olds by identifying the contribution of being raised in different settings which are low

SES homes, institutions, care villages and child homes and the moderating role of temperament. There were core differences found in care types. Investigating emotion understanding development in children in early years can be expected to reveal important outcomes about later social functioning. The sample for this study includes children in care to reveal some practical outcomes on the issue.

*Keywords:* emotion understanding, temperament, care types, preschool children.

## ÖZ

### FARKLI BAKIM TÜRLERİ VE BİREYSEL FARKLILIKLAR SOSYAL HİZMETLERİN BAKIMI ALTINDAKİ ÇOCUKLARIN DUYGULARI ANLAMA BECERİLERİNE NASIL KATKIDA BULUNUYOR?

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Çocuğun erken bakım deneyiminin, sosyal ve duygusal gelişimi üzerinde etkisi vardır. Kurumlarda kalan çocukların duyguları anlama becerilerinde güçlükleri olduğu ve bu problemlerin, koruyucu aile ya da evlat edinme süreci sonrasında da devam ettiği görülmüştür (Pears ve Fisher, 2005 Luke & Banerjee, 2012). Duyguları anlama konusundaki araştırmalar bu alandaki gelişimsel değişimlerin genellikle 2 ve 5 yaş arasında gerçekleştiğini göstermiştir (Dunn & Cutting, 1999). Bunun yanı sıra, mizaç özelliklerinin de duyguları anlama konusunda önemli bir rol oynadığı bulunmuştur (Stifter, Cipriano, Conway ve Kelleher, 2008; Pons & Harris, 2005).

Türkiye'de çocuk koruma hizmetleri kapsamında, birden fazla bakım türü mevcuttur. Bu araştırma, bakım türlerinin etkilerinin, mizaç özelliklerine göre nasıl farklılaştığını ortaya koymak için yürütülmüştür. Bu nedenle bu çalışmanın amacı; ev, kurum, koruyucu aile, çocuk evi ve sevgi evlerinde kalan 3-5 yaşlarındaki çocukların duyguları anlama becerilerini mizaç özelliklerinin de ara bulucu etkisini belirleyerek, farklı bakım türlerinin etkisini araştırmaktır. Bulgular bakım tiplerine göre çocukların duyguları tanınmasında temel farklılıklar olduğunu göstermiştir. Özellikle, sevgi evlerinde ve düşük SES koşullarında aileleri yanında

kalan çocuklar, yuvalarda kalan çocuklara oranla duygu tanımada daha iyi performans göstermiştir. Çocukların farklı duyguları anlama puanları karşılaştırıldığında ise mutluluk, üzüntü, korku ve şaşırma gibi temel duyguları tanımada daha iyi performans gösterdikleri; ama gurur ve utanç duygularını tanımada daha düşük bir performans gösterdikleri gözlenmiştir. Son olarak, mizaç özellikleri ile duyguları tanıma becerisi arasında anlamlı bir ilişki bulunamamıştır. Bu çalışma sonuçlarına göre kurum bakımındaki çocukların gelişimi konusunda yeni düzenlemelere yol gösterecek bazı pratik uygulamalar önerilmiştir.

*Anahtar kelimeler:* Duyguları anlama, mizaç, koruma altındaki çocuklar.

*To children need to be  
cared and loved  
all over the world..*



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## TABLE OF CONTENTS

PLAGIARISM .....	iii
ABSTRACT .....	iv
ÖZ .....	vi
DEDICATION .....	viii
ACKNOWLEDGEMENTS .....	ix
LIST OF TABLES .....	xv
LIST OF FIGURES .....	xvii
CHAPTER	
INTRODUCTION .....	1
1. Children's Emotion Understanding.....	1
1.1. Understanding emotions and their functions .....	2
1.2. Definition of emotion understanding ability.....	3
1.3. Emotion expressions and types of emotions.....	4
1.4. Developmental differences in children's understanding of other's emotional experiences.....	6
1.5. Social experience in family context and emotion understanding .....	9
1.6. Emotion understanding and risky family environment.....	11
1.7. Risks and protective factors for emotion understanding ability .....	13
2. Children at Risk.....	13
2.1. Care types .....	16
2.2. Child care types in Turkey.....	17
2.3. Relation between care types and emotion understanding.....	20
3. Temperament.....	24
3.1. Temperamental characteristics and differential susceptibility theory ....	24
3.2. Definition of temperament.....	25
3.3. Different approaches to child temperament.....	26
3.4. Measuring temperament .....	27
3.5. Temperament, child rearing and general child outcomes .....	28

3.6. Relation between child temperament and emotion understanding ability .....	30
4. Present Study .....	32
4.1. Why study individual differences in emotion understanding with children at risk?.....	33
4.2. Hypothesis of the present study .....	34
METHOD.....	36
2.1. Participants .....	36
2.1.1. Institutions .....	37
2.1.2. Care Villages.....	38
2.1.3. Child Homes .....	39
2.1.4. Low SES Families .....	39
2.2. Measures.....	41
2.2.1. Experience History .....	41
2.2.2. Demographics Questionnaire.....	41
2.2.3. Child Temperament Measure.....	42
2.2.4. Emotion Understanding Measures.....	43
2.3. Procedure .....	46
2.3.1. Getting Permissions .....	47
2.3.2 Translation of the materials .....	47
2.3.4 Data Collection procedure .....	47
RESULTS .....	50
3.1. Data Screening and Cleaning .....	50
3.2. Descriptive Analyses .....	51
3.3. Correlation Analyses .....	53
3.3.1. Correlations between Temperamental Characteristics .....	53
3.3.2. Correlations between Emotion Understanding Domains.....	54
3.3.3. Correlations between Risk Factors and Temperamental Characteristics .....	54
3.3.4. Correlations between Risk Factors and Emotion Understanding Domains .....	54
3.3.5. Correlations between Temperamental Characteristics and Emotion Understanding Domains .....	55

3.4. Results for Reliability Analyses .....	57
3.5. Results of t-test for Emotion Recognition .....	59
3.6. Results for Analyses of Variance (ANOVA) .....	59
3.6.1. Results for one-way between subjects ANOVAs for Emotion Recognition and Emotion Comprehension in terms of Care Types .....	60
3.6.2. Results for mixed ANOVAs for Emotion Types in Emotion Recognition .....	61
3.6.3. Results for mixed between-within subjects ANOVAs for Story Types in Emotion Comprehension task in terms of Care Types .....	62
3.7. Results for Hierarchical Regression Analyses .....	64
3.7.1. Results for Moderating Role of Anger/Frustration Trait among all care types .....	64
3.7.2. Results for Moderating Role of Perceptual Sensitivity Trait among all care types .....	72
3.7.2.2. Perceptual Sensitivity Trait as a Moderator in Predicting Understanding Pride.....	75
3.7.3. Results for Moderating Role of Anger/Frustration Trait among Children under Social Services .....	77
3.7.4. Results for Moderating Role of Perceptual Sensitivity Trait among Children under Social Services .....	83
DISCUSSION .....	93
4.1. Findings of the Present Study .....	95
4.1.1. Findings for Emotion Recognition .....	95
4.1.2. Findings for Emotion Comprehension.....	96
4.1.3. Findings for Emotion Types in Emotion Recognition.....	97
4.1.4. Findings for Story Types in Emotion Comprehension .....	98
4.1.5. Findings for Temperament Interaction .....	98
4.2. Conclusion.....	99
4.3. Contributions of the Study to the Existing Literature and Strengths of the Study.....	100
4.4. Limitations of the Study .....	101
4.5. Future Suggestions and Implications .....	101
REFERENCES.....	103
APPENDICES	

APPENDIX A: Informed Consent .....	115
APPENDIX B: Experience History .....	117
APPENDIX C: Demographic Questionnaire .....	120
APPENDIX D: Child Behavior Questionnaire (CBQ) .....	121
APPENDIX E: Examples for Photographs in Emotion Recognition Task.....	126
APPENDIX F: Stories for Emotion Comprehension Task.....	127
APPENDIX G: Turkish Summary .....	131
APPENDIX H: Tez Fotokopisi İzin Formu .....	144

## LIST OF TABLES

### TABLES

Table 2.1 Demographic Characteristics and Distribution of City of Residence .....	37
Table 2.2 Demographic Characteristics for Low SES Families .....	40
Table 3.1 Descriptive Statistics for Measures of the Study .....	52
Table 3.2 Pearson's Correlations among all Variables .....	56
Table 3.3 Reliabilities for Subscales of Child Behavior Questionnaire (CBQ).....	58
Table 3.4 Summary of Regression Results for Moderator of Anger/Frustration.....	65
Table 3.5 Hierarchical Regression Analysis in Predicting the Overall Emotion Understanding: Anger/Frustration as a Moderator .....	66
Table 3.6 Hierarchical Regression Analysis in Predicting the Emotion of Sadness: Anger/Frustration as a Moderator .....	68
Table 3.7 Hierarchical Regression Analysis in Predicting the Emotion of Surprise: Anger/Frustration as a Moderator .....	71
Table 3.8 Summary of Regression Results for Moderator of Perceptual Sensitivity.....	72
Table 3.9 Hierarchical Regression Analysis in Predicting the Overall Emotion Understanding: Perceptual Sensitivity as a Moderator .....	74
Table 3.10 Hierarchical Regression Analysis in Predicting the Emotion of Pride: Perceptual Sensitivity as a Moderator .....	76
Table 3.11 Summary of Regression Results for Anger/Frustration Moderator .....	78
Table 3.12 Hierarchical Regression Analysis in Predicting the Emotion of Happiness: Anger/Frustration as a Moderator .....	80
Table 3.13 Hierarchical Regression Analysis in Predicting the Emotion of Pride: Anger/Frustration as a Moderator .....	82
Table 3.14 Summary of Regression Results for Moderator of Perceptual Sensitivity.....	84
Table 3.15 Hierarchical Regression Analysis in Predicting the Emotion of Happiness: Perceptual Sensitivity as a Moderator .....	85
Table 3.16 Hierarchical Regression Analysis in Predicting the Emotion of Surprise: Perceptual Sensitivity as a Moderator .....	87

Table 3.17 Hierarchical Regression Analysis in Predicting the Emotion of Pride: Perceptual Sensitivity as a Moderator.....	89
Table 3.18 Hierarchical Regression Analysis in Predicting the Emotion of Shame: Perceptual Sensitivity as a Moderator.....	91



## LIST OF FIGURES

### FIGURES

Figure 3.1 Results for one-way between subjects ANOVA for Emotion Recognition .....	61
Figure 3.2 Results for mixed between-within subjects ANOVA for Emotion Types in Emotion Recognition .....	62
Figure 3.3 Results for mixed between-within subjects ANOVA for Story Types in Emotion Comprehension .....	63
Figure 3.4 Interaction effect between story types and care types in emotion comprehension task.....	64
Figure 3.5 Interaction effect between care village and anger/frustration in understanding surprise .....	70
Figure 3.6 Interaction effect between perceptual sensitivity and child homes in overall understanding of emotions .....	75
Figure 3.7 Interaction effect between perceptual sensitivity and child homes in understanding of pride emotion .....	77
Figure 3.8 Interaction effect between perceptual sensitivity and care village in understanding surprise .....	88
Figure 3.9 Interaction effect between perceptual sensitivity and child homes in understanding shame .....	92

## **CHAPTER 1**

### **INTRODUCTION**

Early caregiving environment has great influence on young children's socio-emotional development. It has been found that young children who have been raised in institutional settings are at risk for deficits in their emotion understanding abilities and research suggested that harmful effects of early caring environment will continue into foster care or adoption (Pears & Fisher, 2005; Luke & Banerjee, 2012).

In Turkey, currently several different care types exist under the government's child protection services. Thus, it is important to explore the effects of different care types on children's development and how these effects differ according to children's temperamental characteristics. Emotion understanding ability is one of the primary abilities that children should develop properly to make it guide for gaining other social skills (Wishart, Cebula, Willis, & Pitcairn, 2007). Therefore, the primary aim of the present study is to investigate emotion understanding abilities of preschool children who are raised in different care settings like home, institution, foster care, care villages and child homes and the moderator effects of child's temperament on this relationship. A number of studies indicate that there is a direct relationship between emotion understanding abilities and early caregiving environment and child's specific temperamental characteristics (Eisenberg et al., 2003).

#### **1. Children's Emotion Understanding**

It is a fact about human life that we rely on each other. In that sense, forming and maintaining relationships are unique purposes of life since we are all born to this life to form a kind of relationship throughout the socialization process. Communication can be seen as the core social domain in all kinds of relationships.

Therefore, our communication abilities determine how we are socially connected to the world. Moreover, our social adjustment is determined over some specific abilities in the context of communication. Mostly language ability is the first thing coming to mind indicating verbal communication. However, emotion understanding ability is also one of the important contributors of this process. This ability is part of a nonverbal communication and provides a better interpretation of others. In this regard, all developmental aspects of emotion understanding ability should be investigated deeply.

### **1.1. Understanding emotions and their functions**

First of all, emotions might be seen as the very first and basic components of the communication. Since a baby's first reaction is crying, which can be considered as an emotional reaction, occurring shortly after the birth, it can be said that infants begin this life under the influence of emotions (Oatley, Keltner, & Jenkins, 2006). Thus, emotions are providers of certain kinds of cues that are useful for organization of the external world and they are facilitators of human adaptation to this world (Dahl, Campos, & Witherington, 2011). Because human beings instinctively need for an organization and a management of the incoming information (Fiske & Taylor, 2008), understanding emotions seems one of the prominent issues for all individuals.

What makes emotions adaptive is that the world is so complex. In this sense, the survival value of the emotions simply bears on the notion that events, which people care about their consequences, reveal some emotions and according to these emotions people take their actions. This idea is propounded by the functionalists. For instance, moving away from a situation as a consequence of the emotion of fear could be a clear example of this. In other words, actions are considerably affected by feelings. In addition to this, the relation between cognition and feelings is bidirectional, and in turn, both affect people's perceptions of others (Strayer, 2002). According to the functionalist approach,

emotions are extremely influential on social, cognitive, perceptual, and also self-regulatory processes. Moreover, emotions are seen as effective on the elements of organism-environment interaction (Witherington & Crichton, 2007). In other words, emotions contribute to formation of the relationships with other individuals. Therefore, for the maintenance of well-being in the relationships with others, it is important to know that, from the very beginning of the early childhood, the immediate environment is an important source of emotional knowledge (Weinberg et al., 1999).

In this case, when emotions are accepted as the means of expression, serving a form of communication, they are very important for a child to maintain reliable relationships with caregivers and other individuals. Furthermore, just as little infants' emotional reactions are influential on the behaviors of others, such as crying of a baby leads the caregiver take an action to soothe, other's emotions also reflect on children's behaviors in the same way (Hepach & Westermann, 2013). From this perspective, the quality of the interaction is determined by each participant's ability to understand emotional expressions of the other.

In respect to this, several questions can be proposed to identify influence of emotions in different sections of interactions with children. In relation to emotional cues, 'how does a little child come to understand which emotions that another person feels?' is a general, but an important question for understanding the origins of this ability which is named as emotion understanding ability.

## **1.2. Definition of emotion understanding ability**

Emotion understanding ability could be defined as the ability to adequately understand emotions of others from various sources. Basically, people's ability to distinguish emotional features in others provides them with this interpretation ability. It involves the ability to recognize facial, behavioral and vocal or contextual cues about emotions (Zajdel, Bloom, Fireman, & Larsen, 2013) and

this is essential for successful functioning and socialization (Wishart, Cebula, Willis, & Pitcairn, 2007).

In a study conducted with preschool children aged between 4-6, children were tested for their emotion recognition abilities. Compared with teachers' reports on the relation of children's aggression and prosocial behaviors with this ability, results indicated that children better at recognizing others' emotions, engage in more prosocial behaviors and better in conflict resolutions. Therefore, they have good maintenance of peer relations. Their ability of understanding others' emotions leads to good relations and more prosocial behaviors (Liao, Li, & Su, 2013). In another study with 6-year-old-children, children's reciprocal relations with their best friends were analyzed. Results indicated children showing more reciprocal relationship also performed better in emotion understanding tasks (Laghi, Baiocco, Di Norcia, Cannoni, Baumgartner, & Bombi, 2014).

Here is an inevitable fact that, since emotions take a vital role in the communication system, if and only if the true reading of emotional cues of others leads to proper implications. However, determining the feelings exactly could be a bit challenging, especially for young children who have less experience with meanings of emotional cues. By the way, body movements, vocalizations and facial expressions present an important source of information about one's emotional state (Ekman, 2003). Therefore, it is important to note that, to get a better understanding of the development of emotion understanding ability, at first one should be aware of emotional expressions and types of emotions.

### **1.3. Emotion expressions and types of emotions**

Ekman and Friesen (1976) defined the positions of face muscles as facial emotional expressions (as cited in Martinez & Du, 2012). Therefore, emotion understanding can be described as visible signals of inner states (Oatley, Keltner, & Jenkis, 2006). Charles Darwin is one of the important figures in understanding

emotional expressions. The first known scientific study of the emotion expression is the observation of infants by Darwin in the year of 1872 (as cited in Ekman, 2003). Furthermore, he continued to observe emotional expressions in adults and infants, and also in animals. He studied photographs of human faces in terms of emotional expressions in depth. He basically argued that emotions serve for human survival and emotional expressions are universal (as cited in Oatley, Keltner, & Jenkis, 2006).

Further, facial expressions continued to be carefully analyzed and various ranges of emotions were determined (e.g., Ekman & Friesen, 1971). Actually, it is a common debate that whether the expressions of some emotions are innate and those emotions are expressed in universal ways (Martinez & Du, 2012). As Darwin as remarked earlier, it is also concluded from other cross-cultural studies that these expressions are inherited by every human as reflexes. However, making sense of them might vary throughout developmental stages (as cited in Oatley, Keltner, & Jenkis, 2006).

In fact, there is a wide range of emotions and they are categorized by different approaches such as positive and negative or basic and complex (Izard, 2009). Some of the emotions that are universally categorized as basic emotions are happiness, interest, surprise, fear, anger, sadness, and disgust. These emotions are believed to be universal and can be directly understood from facial expressions. In contrast to these basic emotions, some higher-order emotions are determined as shame, embarrassment, guilt, envy and pride (Izard, 2007).

Indeed, there are a number of researchers examining the complexity and universality of emotions in a scientific way. The evidence for basic emotions existing universally and intrinsically was found in Eibl-Eibesfeldt's study (1973) with children who were born deaf and blind. Even those children were showing same facial expressions with others such as smiling, crying or surprise. Another example is from Steiner's work (1979) with newborns. He observed that even

newborns made a sour face like expressing the feeling of disgust after they tasted a sour thing (Oatley, Keltner, & Jenkins, 2006). However, the emotions that are classified as higher-order include a social comparison; hence, one needs several cognitive capacities and adult instruction for expressing those more complex emotions (Oatley, Keltner, & Jenkins, 2006).

Therefore, it can be said that not every human being are very good at recognizing each of the emotional expressions, since at younger ages a limited number of emotional expressions are recognizable. Hereby, the focus has come to how emotion understanding ability develops and what are the developmental differences in children.

#### **1.4. Developmental differences in children's understanding of other's emotional experiences**

As it was mentioned before, the ability of accurately recognizing facial expressions is fundamental for successful social interactions (Palermo, O'Connor, Davis, Irons, & McKone, 2013). Up to now, the nature of emotional expressions is discussed, but how they are interpreted is the core question. Is it possible that infants come into the world with the ability to understand the emotional expressions as well as they were born with the ability to express these basic emotions? It is essential to put a restriction as basic emotions to determine the scope of this question because in contrast to basic emotions (e.g., happy, sad, afraid), understanding higher-order emotions (e.g., pride, shame, guilt) requires two kinds of information including others and social norms which are learned through social experiences later in life (Harris, 1989). Thus, it can be inferred that changes could be observed with age in emotion understanding ability. The most critical changes are mediated by the acquisition of verbal language in terms of emotion understanding. However, it is not meant that acquiring verbal language promotes recognition of emotions since emotions are not always verbally stated,

they also include some nonverbal cues. Moreover, even adults have difficulties in the identification of some emotions (Izard, 2009).

Indeed, research indicated that infants usually become sensitive to discriminate others' emotional expressions as early as 4-months-of age. Their ability to interpret the emotional cues of others progressively develops due to development of frontal lobes of the cerebral cortex (Oatley, Keltner, & Jenkis, 2006) and it improves by the help of infant's interactions with caregivers and others (Montague & Walker-Andrews, 2001). In several studies, still face paradigm was used. Those studies showed that even very young infants are sensitive to emotions and they anticipate some emotional responses from their caregivers (Kisilevsky, et al., 1998).

Infants become able to see facial expressions as organized patterns and they become able to pair emotional information from others' faces and voices almost at the age of 5-months (Grossmann & Johnson, 2007). Voice seems to offer more emotional cues because it might include verbal instructions, too. As joint attention improves in infants, they become able to match emotional information from others' facial cues and verbal cues. This presents them a more comprehensive understanding. In addition to joint attention, social referencing also helps to improve emotion understanding abilities of young children. For example, when they encounter an unusual situation, first they usually look at their parents and they use their parent's emotional reactions as a guide. Everyday this requires true reading of emotional cues of parents in order to behave appropriately in different contexts (Harris, 1989). These findings also suggest that emotional signals are built in social experiences.

To be more precise, research revealed significant developmental changes in typically developing children's abilities of understanding emotions. As infants grow older, emotional expressions become intentional in their communication. More often, they pay attention and follow others' emotional expressions



intentionally with the purpose of understanding their intentions and viewpoints (Grossmann & Johnson, 2007).

Especially, throughout the preschool years a rapid advancement could be observed in children's abilities to understand emotions. It was proposed that preschool children understand signs of emotions and in time their understanding incrementally change to more complicated understanding and become more free from error (Stein & Levine, 1999). In general, children at about four or five, become able to make correct inferences about causes of many of the basic emotions such as "he is happy because he got a present".

In an investigation on developmental trajectories of emotions, children's ability to understand certain emotions was measured. Four time point measurement throughout two years with 3 and 4 year old children revealed that there was not a significant change between time points in their understanding of basic emotions. However, there was a difference in the perception of some emotions. Specifically, children were found to perform better in understanding happiness than sadness, fear and anger. In addition, fear and anger scores were higher than sadness score of children in all time points (Wang, Liu, & Su, 2014).

By age, they tend to account for internal states more often than external motivations. Usually after the age of four, the children become able to understand desire-based and belief-based emotions which mean that some of the emotions are triggered by either of these internal factors (Stein & Levine, 1999). Moreover, children at preschool years start making accurate predictions about causes and consequences of an emotion. For instance, children were given stories of causes and they gave correct responses of emotional consequences (Russell, 1990). Similarly, an increasing tendency was found for children's integration of facial and situational signals of emotions (Hoffner, & Badzinski, 1989). Later, they developed awareness that thoughts and emotions are linked together (Lagattuta, Wellman, & Flavell, 1997).

In addition, research on children's emotional vocabulary revealed that with age, they use more different and complicated emotional words in their speech (Fabes, Eisenberg, Hanish, & Spinrad, 2001).

As well as their speech, their naturally occurring reactions to emotions change over time. They become behaviorally more responsive to others' emotions such as hugging a person under the influence of sadness (Fabes, Eisenberg, McCormick & Wilson, 1988).

Furthermore, as they get older children also learn that people can experience more than one emotion at the same time. For example, Harter and Whitesell (1989) conducted studies on children's cognitive capacities of understanding mixed emotions. They concluded that at about 10, children were able to make sense of co-occurrence of even opposite emotions in one situation (as cited in Saarni, Campos, Camras & Witherington, 1998).

Although, research indicated that emotion understanding ability naturally develops and improves by age because of increments in children's cognitive capacities, social experiences also have an important role in its development.

### **1.5. Social experience in family context and emotion understanding**

Herewith, what is clear then, infants, beginning from their early months of life, have the ability to express and perceive emotions. However, these abilities are evoked and promoted by social experiences of infants since infants imitate adults and learn meanings of emotional expressions through social interactions. It can be said that the ability to identify and interpret emotions from both verbal and nonverbal cues as a part of communication system is important for establishment and maintenance of relationships (Mancini, Agnoli, Baldaro, Ricci Bitti, & Surcinelli, 2013). Therefore, it is important to examine these abilities in relation to

social experiences especially in the family context. It is because early interactions with family members introduce what is appropriate.

A great number of studies have been conducted in the area of family context. Especially, mother and child conversations were examined mostly in terms of labeling and explaining emotions among preschool children. It was revealed that the more emotional label and explanation related to emotional states the mother use, the more emotional words children use in their talk consequently (Cervantes & Callanan, 1998). Another study examined the contribution of children's socialization on emotional knowledge indicated that children whose parents more frequently named their emotions were better able to judge others' emotions (Denham & Kochanoff, 2002). In addition, children of mothers who have explained their feelings and who have discussed about them in early years showed advances in later years and those children also demonstrated similar kinds of usages. Furthermore, children with secure attachment are found to be better at understanding emotions since securely attached mothers provide sufficient emotional content in their conversations (Laible & Thompson, 1998).

Similar to parents, siblings also contribute to this process in the same way. Another study carried out by Hughes and Dunn (1998), proposed that more emotional talk with siblings and/or with friends improves children's emotion understanding ability. It was found that children's pretend play especially with siblings in early years, later predicted children's ability to understand emotions of others (Youngblade & Dunn, 1995). Another exploration on emotion understanding through sibling conflict, play and interaction with parents revealed that sibling relationships were unique contributors of identifying emotions of others and expecting emotional reactions from others. Furthermore, presence of a sibling found to be positively affecting development of emotion understanding ability (Kramer, 2014).

That is to say, family experiences provide a rich environment for emotional experiences. Thus, the quality of interaction between parents and children is an important determinant for the development of children's emotion understanding. In return, improvements in the emotion understanding abilities of children might enhance quality of relationships as well.

### **1.6. Emotion understanding and risky family environment**

By now, it was discussed that early emotion understanding abilities are supported by the parent-child relationships (Raikes & Thomson, 2008). In brief, maternal attachment type and mother-child emotional talk are found as core predictors of children's emotion understanding (Farrant, Maybery & Fletcher, 2013). There are many studies which revealed that mothers' elaborateness in discussing feelings broadens the usage of emotional words of children as well as it helps children to gain insight about others' feelings. For example, Farrant, Maybery and Fletcher (2013) found that children, who were exposed to higher levels of mother-child emotional talk, understood emotions better.

In order to present developmental trends in emotion understanding, Smith and Walden (1998) used a diverse sample of preschool children from disadvantaged homes in their research. Results indicated that children might be better at identifying some of the emotions while they were less accurate in understanding others. For example, since in their environment they seem to have greater experience with fear because of high stress situations, those children performed better at identifying fear signals. The same researchers conducted another study to identify the effects of maltreatment on emotion knowledge with a sample of maltreated, and non-maltreated, high risk and low risk groups of preschool children. The primary goal of the study was to find out whether maltreatment itself causes damages in developing emotion understanding abilities of children. The results indicated not much difference between those groups in emotion knowledge (Smith & Walden, 1999). Another longitudinal study in a lower

income sample of mothers and children showed that children with high number of socio-demographic risks are less capable of understanding emotions of themselves and others because they lack emotional knowledge. It is because family risk factors are negatively related with caregiver's emotional conversations (Raikes & Thomson, 2008).

As another example, Shipman and Zeman (1999) explored emotion understanding abilities in mother-child dyads in maltreating and non-maltreating groups in which children were aged 6-12. Results demonstrated that emotion understanding abilities may vary according to parent-child relationship quality. It was found that maltreated children were less able to interpret information about others' emotional experience. This finding again grounded on the fact that mothers of maltreated children are less likely to engage in emotion related conversations which lead to improvements in emotion understanding abilities of children.

More specifically, a systematic review of meta-analysis results showed that maltreated children showed poorer performance on understanding emotions compared to emotion knowledge or emotion recognition which are more basic abilities. However, investigations with composite measures still indicated lower emotion understanding in maltreated children compared to control groups (Luke & Banerjee, 2013).

Children with abuse history and learning difficulties tested for identifying relative influence of those risk factors on emotion understanding ability. Results showed that not abuse but learning difficulty had direct relationship with poor emotion understanding ability. The outcome was discussed and the failure to find a clear relation between abuse history and emotion understanding ability was explained by the fact that abuse is also a risk factor for learning difficulty. Therefore, it was concluded that in their relations, emotion understanding and abuse might be mediated by some other risk factors like learning difficulties (Pons, de Rosnay, Bender, Doudin, Harris, & Giménez-Dasí, 2014).

### **1.7. Risks and protective factors for emotion understanding ability**

As noted before, successful social and emotional development can be characterized by understanding other's emotions. So far, it was mentioned that the ability to understand others develops in the early years. The researchers have studied the primary relations between appropriate developmental level and emotion understanding ability. Without the development of an adequate awareness of emotions, children are at risk for many other problems. Anti-social behaviors could be one of them (Denham et al., 2002). While deficiencies in early interactions with care givers damage the development of this ability, some of the individual characteristics of children might be protective. Children who are raised out of family context are at risk for developing adverse outcomes. However, children's own contribution to their own development should not be passed over. Because individual characteristics considered as temperament play an important role in compensating the negative effects of environment. Therefore, in the next two sections, general characteristics of disadvantaged children and children in care of social services, and also different temperamental characteristics will be discussed in relation to emotion understanding ability.

### **2. Children at Risk**

Psychosocial deprivation in early years of life leads to some deficiencies and causes damages to especially social and emotional development of children. Consequently, this prevents children from typical development (McDermott, Troller-Renfree, Vanderwert, Nelson, Zeanah & Fox, 2013). It is important to keep in mind that children's early caregiving environment is an important source for all developmental aspects notably for social and emotional development. In this regard, it has already been mentioned that caregiving environment affect children truly in terms of developing specific abilities. Furthermore, Harris and Lipian (1989) demonstrated that emotionally stressful caregiving environment highly deleterious for child development even when it is very short term (as cited

in Terwogt, Schene & Koops, 1990). Then, the question that arises in line with this finding is that while even short term duration can cause such negative effects, what about being exposed to a lengthy period of deprivation or risky environment? What is more, the period of early deprivation and risky environment might be responsible for leaving serious damages on children which might not be repaired in later years.

First of all, children who are exposed to multiple risk factors throughout childhood years may end up with negative developmental consequences (Evans, Li & Sepanski, 2013). Socio-economic status, parenting style, parental stress, and family structure could be some of the risk factors (Cole & Mitchell, 1998).

Bronfenbrenner's (1979) bio-ecological model explains the interactions among risk factors. According to this theory, not only a single risk factor, but multiple risk factors could be more harmful for children's development (as cited in Evans, Li & Sepanski, 2013).

Among the variables that affect children negatively, poverty is a strong predictor of social and emotional disturbances. Those children who are living in low socioeconomic conditions are in heightened risk of psychological disorders (Lee, 2011). Economic disadvantages might have some direct effects on children due to insufficient resources to continue their living. When socioeconomic status, parent's employment and number of siblings were considered as preferential bases, direct relation between those factors and problem behaviors was found. In terms of occurrence of both externalizing and internalizing problems, low socioeconomic status, mother's unemployment and number of siblings were found to be positively correlated (Seven, 2007). However, the concept of poverty itself cannot be enough to explain the negative developmental outcomes but high stress level in homes with poverty might be an explanation for the negative developmental outcomes. Therefore, the negativity level of expression towards

children in those homes could be an important determinant of the outcomes (Oatley, Keltner, & Jenkis, 2006).

A family which experiences poverty usually establishes a ground for depression and conflicts, too. When several risk factors occur simultaneously, it puts children at risk rather than healthy development. Negative parenting practices might be one of the factors that increase the risk for children's poor development in poverty conditions (Bøe, Lundervold, Hysing, Sivertsen, Heiervang, & Goodman, 2013). Therefore, it could be said that, besides poor socioeconomic circumstances, neglect, abuse and other maltreatments in parent-child relationship are more harmful for children. The recent research which focused on the effects of maltreatment specifically revealed that physical and psychological challenges in the environment result in developmental delays, socio-emotional difficulties, and psychological maladjustment and psychiatric disorders (Fisher, Stoolmiller, Gunnar, & Burraston, 2007). A longitudinal study with economically disadvantaged preschoolers indicated a significant relationship between early socio-emotional development and later academic success. Findings suggest early implications for low income children and should be considered for developing socio-emotional skills (Oades-Sese, Esquivel, Kaliski, & Maniatis, 2011).

In addition, another group of children who are abandoned or abused and are taken under the care of social services are at risk. Even children with biological families, may have emotional and behavioral problems, when they are exposed to non-maternal care in infancy years (Côté, Borge, Geoffroy, Rutter, & Tremblay, 2008). Therefore, the groups of children who are out of home care are at elevated risk of atypical development. An investigation on children's development compared typical children and children having reactive attachment disorder with a history of foster or adoptive care. Results indicated that compared to control group, children with attachment disorder exhibit more avoidance and difficulty in understanding what is immoral (Termini, Golden, Lyndon, & Sheaffer, 2009).



Actually, social services could do a lot to protect children from detrimental effects of stressful home environment. For example, when children are placed in foster care, usually they are better off in terms of psychosocial outcomes compared to children who stay in risky home environments with their biological parents. Healey and Fisher (2011) demonstrated that, despite the high risk some of the children in foster care showed favorable developmental outcomes. Another longitudinal study involved children in long term foster care. Despite progress, the results indicated high prevalence of externalizing and internalizing problems among those children. In respect to psycho-social functioning, children who were more stable in terms of placement found to be able to benefit from foster care and improved their outcomes (Fernandez, 2008). Even so, in terms of socio-emotional development, placement in foster care at an early age was associated with the decline in problems (Koponen, Kalland & Autti-Rämö, 2009). However, Jacobsen, Moe, Ivarsson, Wentzel-Larsen, and Smith (2013) compared foster children with age-matched children living with their biological parents in terms of cognitive and social development. They found that foster children perform poorly and they are unable to catch up with comparison children. Yet, it can be inferred that institutional care experience have long term effects on children since these effects are observed even after the placement of these children to foster families.

## **2.1. Care types**

Child protection is about protecting the human rights of the children who are the most vulnerable ones to risk factors. According to United Nations Convention on the Rights of the Child, the child protection system and foster family practice has been one of the most fundamental international legal bases in all countries as in Turkey (Karataş, 2007). In fact, millions of children live in institutions and foster care settings around the world. Institutions help survival of those children without parental care; however, effects of institutional care found as being disruptive on child development (Johnson, 2002).

In relation to children out of home care and transitions between different care types presented by social services, many studies have been conducted on the psychological health and academic achievement of children. When type of placement is considered in terms of psychological adjustment, compared to institutional care, foster care is found to have positive effects on children (Nowacki & Schoelmerich, 2010). In many countries care arrangements have been made in the light of literature (Fernandez & Atwool, 2013; del Valle, Canali, Bravo & Vecchiato, 2013; Courtney, Flynn & Beaupré, 2013; Anghel, Herczog & Dima, 2013).

Care types developed for children under protection change from country to country and vary depending on the country's social, economic and cultural structure. There is a considerable variation in policy implications. Nowadays, in Europe, Australia and North America large and crowded care homes started to be closed. However, especially in the third world countries, particularly in developing countries, the prevalence of institutions is still high (Şimşek, Erol, Öztop & Özcan, 2008).

## **2.2. Child care types in Turkey**

Unfortunately, there are a number of children who need to be protected in Turkey. It has been acknowledged that government has a prior role to protect the child that cannot be protected by his/her family. Therefore, new care alternatives should be introduced. Recently child protection systems and policies have been rearranged in Turkey (Karataş, 2007). In Turkey, children in need of care are taken under protection and cared according to the International Children's Rights Convention and the law 2828. Prime Minister's coordinating organization is required by law Turkish Republic Constitution, Turkish Civil Law, Social Services and Child Protection Law No: 2828 (Çetin, 2006).

The current child protection profile system in Turkey provides several different care options. Methods of care given to children in need of protection are protecting the child in family environment, foster care, adoption and institutional care. Institutional care also differentiated in different types such as placement in institutions, care villages, children/group homes (Yazıcı, 2012). Through them, in general, children in need of protection are placed in two groups according to age (0-6, 7-18) and care forms were arranged accordingly.

It is a fact that growing up in different care environments has different effects. What is worse, there have been heavy criticisms on care provided by institutions in Turkey. By taking into consideration these criticisms some regulations have been made to ensure healthier development of children (Elmacı, 2010). Governmental protection given to children who need residential care services may be listed as follows:

*Institutions:* In this type of care children reside in large groups, they usually eat, play, sleep in big rooms and do not have personal belongings like clothes, toys or even a designated bed. In these institutions, sometimes 15-20 children are cared by one person that is called mother in Turkish system. Usually these care givers work in shifts that children get to see some many different caregivers within a single week.

*Care Villages:* They are the product of the first attempt to replace institutions with smaller units in Turkey. Usually they've been founded in campus like settings where several detached houses are placed. In each house 10 to 12 children cared by few stable caregivers. In these houses children have their own beds and wardrobes and some personal belongings. Houses in care villages appear to be more similar to family home environments.

*Child Homes:* They are usually self-contained apartments located in cities' residential areas, close to schools and hospitals where 6 to 8 children are residing.

Child Homes are the second attempt of the Social Services to introduce family home like environments for children in care (Care Services Department in Connection with Serving Units, n.d.). In these homes children have their own belongings, food is cooked in their kitchen and staff is more stable.

*Foster care:* The placement of the child in foster families according to social examination results based on the evaluations on the age and education requirements. However, it is also a fact that foster care system is not a very successful practice in Turkey. In developed countries, 75% of children in need of protection are placed in foster care, whereas in Turkey this rate is only 4% (Yolcuoğlu, 2009). Therefore, the share of this implementation of care services for children in need of protection is quite limited. Moreover, for some children institutional care may be more useful. For example, children who are unable to maintain family harmony in foster care because of behavior problems might be better off staying in institutional care (Şenocak, 2010).

However, these different care types have not been settled down totally and sometimes children are moved from one type of care to another. There are a number of studies about child care and child outcomes in Turkey. For instance, a study investigated the prevalence of mental disorders among institutionalized children found that children who were reared in institutions had higher rates referrals for mental disorders. Attention deficit hyperactivity disorder, reactive attachment disorder, oppositional deficient disorder, and pervasive developmental disorder were most prevalently seen in this sample (Ayaz et al., 2012). Another study examined the prevalence of emotional and behavioral problems in children reared in institutions revealed that externalizing problems, social problems, thought disorders, and attention problems among children in institutional care was seen in higher rates than the normative sample (Şimşek, Erol, Öztop & Özcan, 2008). Akay, Miral, Baykara, and Yemez (2006) also investigated emotional and behavioral problems of adolescents by considering age of placement in an institution, and total time spent in institutional setting. Rates of problem behaviors

were found to be higher among children who were placed in an institution at an early age. The relation between the time spent in institutional care and problem behaviors was not significant.

Development of theory mind ability was also investigated in Turkish preschool children who have been institutionalized. After controlling for their socioeconomic background and language scores, institutionalized children performed worse than children from low and middle socioeconomic status. This result accounts for significance of parent-child interaction in development of theory of mind (Yagmurlu, Berument, & Celimli, 2005).

Another study was designed to improve language and cognitive development of children in institutions in Turkey revealed that children in the intervention group showed increase in their language and cognitive abilities. It was inferred that child development could be enhanced in those settings by enhancing the care quality especially by providing one-to-one interaction with children (Berument, Sönmez, & Eyüpoğlu, 2012; Berument, 2013).

Foster families have an important role in the child protection system. An investigation on children's behavioral and emotional problems in foster care system in Turkey compared the children who were in institutional care with the children who were cared by foster families and by their own families. While problem scores were found to be higher in the institutionalized group, there was no significant difference between children of foster or biological families (Üstüner, Erol, & Şimşek, 2005).

### **2.3. Relation between care types and emotion understanding**

As it was mentioned before, ability to recognize different emotions plays a central role in typical human social interactions. Given the information that early experiences play an important role in shaping children's ability to recognize

different emotions, it can be expected that children growing up in environments characterized as psychosocial deprivation would be extremely at risk for impairments in emotion recognition. Indeed, studies have demonstrated that parental neglect is associated with children's impaired ability to discriminate and recognize different facial expressions of emotion (Pollak, Cicchetti, Hornung, & Reed, 2000).

It is a fact that sometimes even home settings do not appear to be optimal for children's healthy development. In this sense, having been placed in care by the social services could possibly be more detrimental on children's development. For instance, Terwogt, Schene and Koops (1990) investigated the concept of emotions in institutionalized children. It was found that there was a difference between younger and older children in terms of identifying observable pieces of emotions and mental aspects as seen with typically developing children. However, a significant developmental delay was found in institutionalized children. Therefore, despite showing similar developmental stages in emotion understanding, the length of institutionalization found to be withholding children to reach expected development levels.

Accordingly, in one study, researchers compared children in institutions with children living with biological families in terms of their recognition of emotions in voices. Children whose ages ranged from six to ten were tested with recordings that included different emotional expressions. The results did not indicate much of a discrepancy between two groups of children in general. However, there was a dramatic difference in the recognition of emotions from male voices compared to female voices in institutionalized children since these children predominantly have experiences with females. Moreover, institutionalized children were found to identify negative emotions more than positive ones (Cheyne & Jahoda, 1971). This finding indicates the importance of early social experiences in the development of emotion understanding.

Moreover, Moulson, Fox, Zeanah, and Nelson (2009) also examined the negative neurobiological consequences of early institutionalization in relation to facial emotional processing. Responses of three groups of children, who were in institutional care, foster care after being in institutional care or never institutionalized children who were reared by biological parents, were compared for their ability to discriminate pictures of facial emotional expressions, so event-related potentials (ERPs) of children were recorded. They found that institutionalized children showed delays and smaller amplitudes compared to never institutionalized children. In addition, ERP amplitudes and latencies of foster children were found to be intermediate between other two groups of children. Therefore, it can be said that institutionalization is associated with adverse neural changes in relation to identification of emotions from pictures.

Another study investigated whether differences in social, emotional and cognitive development exist between the two groups of children who were adopted after being cared in an institution or reared in two parent families. As all other domains adopted children got lower scores on the emotion understanding task. It was suggested that adopted children need a longer period of time to gain experiences about feelings and relations (Vorria et al., 2006).

Furthermore, Tottenham et al. (2010) examined the effects of length of stay in an institution on developing emotional system. It was found that longer institutionalization is associated with poorer response to emotional stimuli. Camras, Perlman, Fries & Pollak (2006) investigated post-institutionalized children with two emotion understanding tasks. In the first task, children were expected to select facial expressions regarding to four emotions. Secondly, children were asked to match facial expressions with stories describing situations for those emotions. Results indicated that both post-institutionalized groups scored lower than the never-institutionalized children.

Another study examined the effects of neglect on children's emotional development. Children who had experienced institutional care before adoption were recruited into study. Those post-institutionalized children showed difficulties in identifying facial expressions of emotion. Moreover, they had significant difficulties matching facial expressions of emotions with stories including emotional content. What is worth to consider, those children found to be good at identifying and matching angry facial expressions (Fries & Pollak, 2004). In line with those findings, Garvin, Tarullo, Van Ryzin & Gunnar (2012) worked with children adopted from institutions. Parenting quality was found to moderate the effects of early institutionalization on emotion understanding among those children. Further emotional availability of parents found to be positively affecting children. However, foster care experience was also found to be related to deficits in psychosocial development. The study which compared foster children with low income non-maltreated children found that being in foster care significantly predict lower emotion understanding ability. Moreover, length of time and number of transitions in foster care were also associated with poor child outcomes (Pears & Fisher, 2005).

There are also some conflicting findings. Jeon, Moulson, Fox, Zeanah, and Nelson III (2010) examined the ability to recognize facial expressions in children. They compared three groups of children who were in institutional care, in high quality foster care and never institutionalized. Contrary to other findings, they found no difference among three groups of children in terms of emotion identification ability. Children were able to acquire face processing skills even when they were in institutional settings. In addition, Tarullo, Bruce, and Gunnar (2007) conducted a study to compare adopted children from institutional care and from foster care. According to their findings two groups did not differ on their emotion understanding after controlling for verbal ability. In this study, emotion understanding tasks were prepared for younger ages, but participant children were six and seven year olds. Therefore, it was suggested that, children might not have



deficits in their emotion understanding ability, but rather they showed a delay in emotion understanding.

### **3. Temperament**

In the section above, it has been discussed how social environment directly effects child development. Children's emotion understanding abilities are largely shaped through social interactions and quality of early caregiving environment. Now this chapter turns the subject to the child's side specifically to relatively biological make-up of the child. It has long been known that, in addition to social experiences, individual differences play a crucial role in child development and these differences moderate the effects of environment on child outcomes. Therefore, temperamental characteristics of children will be considered here.

#### **3.1. Temperamental characteristics and differential susceptibility theory**

It is clear that different social contexts specifically the nurturing environment have a great influence on children's developmental processes. However, it is also a fact that, the environmental influences do not affect every child in the same way (Belsky, 1997). It has been a long, deep debate for years that whether nature or nurture is more responsible for how children develop. In those terms, while nature, which refers individual characteristics that are inborn, is found to be relatively important as much as nurture, which refers personal experiences after birth within the sociocultural circumstances (Eagly & Wood, 2013). From the developmental perspective, investigations have revealed that nature and nurture act and contribute to developmental outcomes together. Many studies provided evidence for how environmental effects interact with individual characteristics and shape the child (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & Van IJzendoorn, 2011). Yet, their interaction might produce countless outcomes since there are various individual characteristics and environmental effects. Therefore, the variations in temperament should be considered in relation to early child

caregiving environment to understand the particular developmental aspects of children.

In relation to this, Belsky's differential susceptibility hypothesis proposes that children vary in their susceptibility to rearing influences. In other words, some children are more or less susceptible to risks in the early caregiving environment (Belsky, 1997). Most notably, both negative and positive environmental conditions extremely influence child outcomes when sensitivity of children increases (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & Van IJzendoorn, 2011).

From this perspective, effects of rearing on children who are more susceptible should be discussed in terms of specific child characteristics. More specifically, which temperamental characteristics are more functional and how they differentiate the outcomes of children in terms of rearing experiences should be considered.

### **3.2. Definition of temperament**

Basically, child temperament has been considered in relation to genetic and biological factors and it is defined as basic and persistent dispositions beginning from early years of life (Shiner et al., 2012). In fact, from the very first hours of life infants show some signals of individual differences in their behaviors and emotional expressions. For example, some babies are soothed easily when they cry, but others are not. While some babies become frustrated when people try to touch and play with them others do not. Such differences can be called temperamental characteristics. Goldsmith (1993) defines such temperamental characteristics as stable over time and across situations, and typically inherited (as cited in Oatley, Keltner, & Jenkis, 2006).

Actually, variations in temperament emerge from combination of different domains of temperamental characteristics and researchers have identified many domains (Zentner & Shiner, 2012). Thus, there are different approaches to definition of child temperament that will be considered in the next section.

### **3.3. Different approaches to child temperament**

There is an increasing interest in temperamental differences in children, so that several approaches have emerged. However, a milestone for temperament research is the behavioral styles approach from the New York Longitudinal Study by Thomas and Chess (1956). It investigated the roots of temperament from infancy through adulthood. Their focus was to confirm that individual differences might increase the risks for psychological problems or protect child from some external risk factors. Thus, Thomas and Chess (1977) emphasized that the interaction between child and environment is reciprocal and influences each other. For better adjustment of a child, they suggested goodness-of-fit model which suggests that caregiving practices should fit with children's unique temperament. Consequently, they introduced a model of temperament with nine dimensions. From the ratings on those dimensions, they came up with three categories of children. They found that many babies could be categorized into one of three groups; namely, difficult, slow-to-warm-up and easy (Zentner & Shiner, 2012).

Another approach on temperament is the criterial approach suggested by Buss and Plomin (1975). They presented EASI model and categorize temperamental characteristics as Emotionality, Activity, Sociability and Impulsivity. Later they proposed the EAS Temperament Survey (1984) by splitting the Sociability domain into sociability and shyness (Zentner & Shiner, 2012).

Then, the psychobiological approach model was developed by Rothbart and colleagues (1981). Originally, they constituted the model for infants, and then they enlarged the age range even to adults. For all age groups, the surveys

comprise three broad dimensions namely, Negative Affect, Surgency and Effortful Control. However, all instruments that they produce include many subscales which are partially overlapping at different age levels (Zentner & Shiner, 2012).

Further, the emotional regulation model of Goldsmith and Campos (1987) suggested that temperament involves emotions in nature. Therefore, they defined dimensions of temperament in terms of basic and universal emotions determined by Ekman and Friesen (1971). They used Activity Level, Social Fearfulness, Anger Proneness and Interest/Persistence subscales in their model (Zentner & Shiner, 2012)

Lastly, Kagan's behavioral inhibition model (1994) highlighted behavioral inhibition in predicting behaviors. Kagan and colleagues made their categorization as high versus low reactive or inhibited children (Zentner & Shiner, 2012).

### **3.4. Measuring temperament**

When it comes to measurement of temperament such clear cut distinctions cannot be given easily. Generally, the measurement of temperament is based on parents' ratings of their children's typical behaviors and reactions (Oatley, Keltner, & Jenkis, 2006). Alternatively, observation of temperament might be used. For instance, the amount of negative emotional expression a child shows during the assessment could be taken into account (e.g. Preschool Laboratory Temperament Assessment Battery; Goldsmith et al. 1993; as cited in Zentner & Shiner, 2012). In addition, physiological measures are used for analyzing the biological basis of temperament. EEG methodology is offered to a measure of neural functioning, especially gives evidence for functioning of amyglada. Investigations on neural basis show links between neural functions and individual differences in temperament traits (Zentner & Shiner, 2012).

### **3.5. Temperament, child rearing and general child outcomes**

In consideration of temperament, unique characteristics of children are found to play a role in specific child outcomes. For example, high negative emotionality and low inhibitory control are together found to be related to symptoms of depression (Vasey et al., 2013).

In addition to direct relation, temperament research often highlights the child's contribution to his or her own development in combination with other risk factors such as negative parenting. Therefore, there is a growing body of research on temperament including its interaction with child rearing experiences. According to differential susceptibility theory, quality of early care giving environment interacts with children's temperament and predicts especially socio-emotional developmental outcomes (Eisenberg et al., 2012).

For example in one study, Van Zeijl and colleagues (2007) examined the relationship between child temperament and maternal discipline. Their goal was to make prediction about externalizing problems in early childhood years. The sample consisted of children who exhibited high levels of externalizing problems between the ages of one to three. The observations of maternal discipline and reports of child temperament revealed that some children who have relatively difficult temperamental characteristics were more sensitive to types of discipline either positive or negative rather than children with easy temperamental characteristics. This finding is compatible with differential susceptibility theory. Therefore, it can be concluded that externalizing problems in children emerge not only by the effect of negative parenting, but also results from moderating effect of child temperament.

In another study, moderating role of temperamental characteristics on parenting was examined. Results indicated that when negative emotionality and sociability were observed in higher levels among children, parent's negativity also increased.

This showed child's contribution to negative parenting and in turn reciprocal influences in development (Ganiban, Ulbricht, Saudino, Reiss, & Neiderhiser, 2011). Moreover, contribution of interaction of child temperament and parenting was examined in terms of the development of inhibitory control. Maltreated and non-maltreated children participated in the study. After controlling for socio-demographic variables, evidence was found for the moderator role of children's negative temperament for both of the groups. More specifically, children with negative temperamental characteristics demonstrated greater inhibitory control when their mothers gave more support. It was concluded that sensitivity to caregiver's support is more important determinant for children's self-regulation even in maltreatment conditions (Cipriano-Essel, Skowron, Stifter, & Teti, D., 2013).

De Schipper, Oosterman, and Schuengel (2012) also investigated the moderating effect of temperamental characteristic of shyness in relation to parental sensitivity and attachment quality among foster care children. Results were consistent with the differential susceptible theory. Inhibited children demonstrated more sensitivity to parenting practices and they were found to benefit more from foster care.

Another study showed how child temperament and parenting differences might influence each other. Analyses indicated interaction between temperamental characteristics of emotionality and activity level, and mothers' punishment styles and inductive reasoning. In turn, they found to be predicting children's pro-social behaviors. In other words, temperamentally more difficult children were found to benefit more from positive parenting practices and they show more prosocial behaviors (Brajša-Žganec & Hanzec, 2012).

Therefore, most of the findings discussed so far revealed some variations in children in several developmental domains. If it is necessary to turn to the topic to emotion understanding, there is evidence found for the joint contribution of

temperament and environment variations in emotion understanding abilities of children.

### **3.6. Relation between child temperament and emotion understanding ability**

Temperament that is biologically based is also an important component for emotion understanding. To date; however, the research on understanding of the nature of the underlying processes contributing to individual differences in emotion understanding ability has been limited.

In general, emotion reactivity hypothesis supports that children with certain reactive temperamental characteristics, who are both more aggressive and socially withdrawn are expected to show lower performance on social understanding (Lane et al., 2013). Moreover, temperamental inhibition found to be related with inability to know about other's emotions (Stifter, Cipriano, Conway, & Kelleher, 2009). For instance, Bandstra, Chambers, McGrath and Moore (2011) investigated the roots of individual differences in children's responses to other's sadness in relation to empathic reactions of children. The findings of this study indicated that children with low negative reactivity show more concern to sadness. On the other hand, children who got high scores on shyness-inhibition domain showed less awareness about other's sadness expressions.

Moreover, in their study, Blankson, O'Brien, Leerkes, Marcovitch, and Calkins (2012) examined the structure of early emotion understanding with preschool children. They found that children who display more emotional control, which reflects temperamental dimensions of falling reactivity/soothability, negativity and emotion regulation, also show higher levels of emotion understanding. Specifically, they are better able to recognize their own and other's emotions; in addition, they are able to accurately label these emotions and understand their causes. Another study searched for the links between temperament and emotion knowledge and assessed the emotion understanding abilities of preschoolers.

Results indicated that temperamental characteristics of emotional intensity predict children's emotion understanding abilities positively (Garner & Power, 1996).

Dunn and Cutting (1999) also investigated individual differences in young children's understanding of others in the friendship context. They tested pairs of close friends together in terms of social understanding. They used an interview developed by Cassidy et al. (1992) that focused on emotion understanding abilities by considering their relationships. The children were first asked to identify some basic emotions. After the correct identification, for each of the emotion they were asked to report an example for themselves, their mothers and their close friends about causes of those emotions (as cited in Dunn & Cutting, 1999). Children who scored high on hyperactivity or shyness subscales of temperament found to be having lower scores on emotion understanding and affective perspective taking of their friends. Another investigation on preschool peer play also provided information about child temperament and emotion understanding. The study pointed out that those children with higher levels of self-regulation score performed better on emotion understanding tasks (Mathieson & Banerjee, 2010).

Moreover, temperamental disposition of shyness was found to be associated with deficits in the recognition of facial cues. Findings suggested that underlying negativity in social behavior of inhibited children might be due to inability to recognize emotions in others (Brunet, Mondloch, & Schmidt, 2010).

Lastly, a study with infants investigated temperamental dispositions in relation to infant's attention to emotional expression. In the study, for assessing infant temperament, activity level, smiling and laughter, fear, distress to limitations and approach subscales were considered. Then high and low groups were evaluated in terms of fearfulness and smile. According to the results, infants scored high on fearfulness showed more sensitization to fearful faces rather than happy faces (De Haan, Belsky, Reid, Volein, & Johnson, 2004).



In summary, these studies showed that certain temperamental characteristics are strongly associated with the development of emotion understanding ability in children. However, it is important to keep in mind that children's emotion understanding ability emerges both from the environmental and the individual constitutions. It is because effects of child rearing practices are often moderated by early temperamental characteristics of children (Pluess & Belsky, 2010). Then, it is clear that emotions become meaningful in children's interaction with other people. Some of the child characteristics should be considered as adaptive and they help children to acquire emotion understanding ability within social world especially in relation to the aspects of caregiving.

#### **4. Present Study**

To date, several distinct components of emotion understanding ability have been investigated by using a wide range of methods over different samples. The research on emotions has continued ever since from simple attributions on expressive cues of babies to complex understanding of adults. Most of these studies have focused on age factor on the development of emotion understanding abilities to establish some universal trends. Researchers have investigated developmental differences in individuals' ability to understand emotions. Based on this research, the developmental changes are found as usually occurring between the second and the fifth year of life (Dunn & Cutting, 1999). However, it is an unfortunate fact that not every child develop typically. What is worse, many of the children are not able to complete the developmental steps truly due to the lack of sufficient care. These children would have developed as they are expected only if healthy nurturing environment had been provided to them. Even so individual differences might help those children. For this reason, the current study first focused on the effects of different care types on development of emotion understanding abilities of children in care and second on the moderating role of child temperament.

#### **4.1. Why study individual differences in emotion understanding with children at risk?**

It is known that understanding of other's emotions helps children in their attempt to get along with others. Therefore, development of emotion understanding not only supports social and emotional development of children, but also it supports children's adaptations. The sample for this study includes children in care because of their adaptation problems due to lack of reciprocal interaction with caregivers. In Turkey, a sizable number of children are residing under the care of social services. Recently, Ministry of Family and Social Policies have been making new arrangements on the care services in Turkey. However, to the best of our knowledge, the current study is the first investigation to compare the effects of care types on children's emotion understanding abilities. Development of emotion understanding should be an important concern for policy makers because this ability is a notable motivator for later pro-social and altruistic behaviors.

This study is actually a part of a larger longitudinal investigation of continuity and change in the development of cognition, emotion, and temperamental characteristics in children in different types of care. The present study is expected to contribute to the literature by revealing the role of different care types on the development of emotion understanding abilities of young children. Children receiving different care types under social services were compared to children raised by biological families in low SES condition in order to reveal role of caregiving environment. Furthermore, in the present study child's temperament was taken as a moderator to test the differential susceptibility theory.

Besides expanding the knowledge in the existing literature, present study is expected to contribute to the design of interventions by emphasizing the role of care giving environment in early social and emotional development. Moreover, this study touches upon temperamental characteristics and care environments as well as their interactions to test the development of children's emotion

understanding. Therefore, the interaction between the care status and the child characteristics are expected to reveal important outcomes.

#### **4.2. Hypothesis of the present study**

The current study mainly investigates the moderating effect of child temperament and child rearing status in the prediction of emotion understanding abilities in early childhood years. To be more specific the central hypotheses of this study are as follows:

After controlling for socio-demographic factors including child's age, gender, cause of placement, previous care experience of children,

1. Children who are raised in institutional care will be less accurate to identify and understand emotions than children in home setting, foster care, child homes or care villages.
2. Children with higher scores on the perceptual sensitivity, inhibitory control and soothability domains of temperament characteristics will be better than children with lower scores in these domains at understanding emotions.
3. Children with higher scores on the anger/frustration domain of temperament characteristics will show worse performance than children with low scores on the anger/frustration domain on understanding emotions.
4. Children with low scores on the perceptual sensitivity domains of temperamental characteristics who are in institutional care will be worse in understanding emotions compared to children in low SES group, but no difference is expected for children with high scores of this temperamental characteristic among all care types.

5. In general, children in all groups will score better on emotion recognition in face+body condition rather than face-only condition.
6. All children will be better at identifying basic emotions (happy, sad, afraid, and surprised) rather than higher-order emotions (pride, shame).
7. All children will be better at understanding emotions in situation based stories rather than desire or belief based ones.

## CHAPTER 2

### METHOD

#### 2.1. Participants

Data included a total of 124 preschool children aged between 36 to 60 months ( $M_{age} = 48.17$  months,  $SD = 6.58$ ). Participants were drawn from children ( $N = 105$ ) who were under the care of General Directorate of Children Services of Ministry of Family and Social Policy, and an additional sample of children ( $N = 19$ ) living in low socioeconomic conditions were also recruited for comparison purpose. The children were currently residing in four different settings which were institutions, care villages, child homes and homes with parents in low SES condition. Actually, it was planned to have a foster care group as well. However, due to the small number of turnout to invitations for participating in the study from foster parents, this sample was dropped out from the study. Ultimately, 48 girls and 79 males were included in the study. The participant children were residing in different cities in Turkey. The number of participants in each group in each city is shown in Table.1. Detailed information about the care places of the participants is provided below.

**Table 2.1** Demographic Characteristics and Distribution of City of Residence (N= 124)

Care Placement	Female	Male	Mean of Age (months)
<b>Institution</b>	<b>7</b>	<b>33</b>	<b>46.12</b>
Afyon	1	1	45.50
Ankara	1	-	39.0
Denizli	1	3	47.75
İstanbul	5	28	46.18
<b>Care Village</b>	<b>15</b>	<b>15</b>	<b>51.40</b>
Ankara	4	8	53.42
İstanbul	4	1	49.40
Kocaeli	7	6	50.31
<b>Child Home</b>	<b>13</b>	<b>22</b>	<b>46.69</b>
Ankara	13	18	46.23
İstanbul	-	4	50.25
<b>Low SES (Ankara)</b>	<b>11</b>	<b>8</b>	<b>51.11</b>

### 2.1.1. Institutions

A total 40 children residing in institutions in four different cities -Ankara, Denizli, Afyon and İstanbul- were included. All of the four institutions were administered by the Ministry of Family and Social Policies. Therefore, the environmental conditions, regularity and care-giving quality were quite similar. In general, institutions are residential social service organizations that are responsible for supporting physical, educational and psycho-social development of children aged 0-12 in need of protection. In each of the institutions, there were separate flats/rooms or houses for each age group with a living room and bedrooms and the kitchen and bathrooms were usually communal. All spaces have been furnished according to children's ages. Whenever possible, there were playgrounds made both inside and outside the buildings. In each group, there were 10-15 children. They were taken care by six different maintenance staff. The child-care providers were chosen from Girls' Vocational Schools who got education in the area of child

development and education in order to meet the basic needs of children and to improve the quality of services provided by those mothers (Care Services Department in Connection with Serving Units, n.d.). Care-givers named "mothers" work in shifts. There are four mothers working in day time, and two mothers present in the night time. Two daily mothers are working on a one-day interval shift, and one mother is working in every two nights. Thus, the rotation was so much for children to form an attachment. In week days, in some of the institutions, there is also a female educator who may or may not have a higher education, but specialized in child care. The daily program for children was highly strict. They spend most of their time in living room together and they were not allowed to move freely. The meals are delivered to each institution from a central kitchen, but served in the kitchen closer to where children are residing. Therefore, there was no home like organization in these institutional settings.

### **2.1.2. Care Villages**

A total of 30 children staying at care villages in Ankara, İstanbul and Kocaeli were recruited to the present study. Like institutions, care villages in Turkey are also administered by the Ministry of Family and Social Policies. Therefore, the environmental conditions, regularity and care-giving quality were quite similar among the care villages included in the study. In general, care villages are residential social service organizations designed to form home like environments inside a campus. In each of the campuses, there were separate houses for each group with a living room, bedrooms, kitchen and a bathroom that were quite similar to family homes. In each house, there were 9-10 children with mixed age groups to establish family like relations. There was a small number of staff providing the service usually two mothers, so the care giving was provided continuously and constantly. This system aimed to provide children with a sense of basic trust; therefore, firm and consistent behavior of mothers minimized potential personality and behavior disorders in children (Care Services

Department in Connection with Serving Units, n.d.). The children were free to move in and around the houses in the campus.

### **2.1.3. Child Homes**

There were 35 children residing in child homes from Ankara and İstanbul recruited into present study. There were 6-8 children in those homes which were intertwined with the society and the society's reality in appropriate areas for child rearing preferably in the city centers near the schools and hospitals. The children were aged from 0 to 18 in those homes. The maintenance staff in those homes was continuous and constant. There were usually two caregiver mothers present. The meals are cooked in the houses by those mothers and the environment was so similar to a family home. Generally, different from institutions, siblings who were in care, lived together in the same house. These houses were either received as a donation or rented by the governance of the Ministry of Family and Social Policies (Care Services Department in Connection with Serving Units, n.d.).

### **2.1.4. Low SES Families**

19 children were recruited from the low SES areas located in Ankara. The recruitment process was mainly based on snowballing method. First, through acquaintances few contact people were found in low SES neighbourhoods (like Mamak, Sincan, Saimekadın) in Ankara. After reaching these families, they introduced us their friends, neighbours or relatives who might be interested in participating in the study. Family income and mother's education level were taken into account in the recruitment process. All of the families were biological parents of children. Mothers' ages ranged between 20 and 45 ( $M = 31.1$ ,  $SD = 6.48$ ) and fathers' ages ranged between 26 and 40 ( $M = 32.44$ ,  $SD = 4.75$ ). 5.3% of mothers ( $n = 1$ ) were only literate. 36.8% of mothers ( $n = 7$ ) and 47.4% of fathers ( $n = 9$ ) graduated from primary school, 26.3% of mothers ( $n = 5$ ) and 10.5% of fathers ( $n = 2$ ) graduated from secondary school, 21.1% of mothers ( $n = 4$ ) and 36.8% of



fathers ( $n = 7$ ) graduated from high school and 10.5% of mothers ( $n = 2$ ) graduated from university.<sup>1</sup> All of the mothers were housewives. At most they had three children. One of the mothers was separated from her husband whereas all others were married and living with their husbands. In addition, 15.8% of parents ( $n = 3$ ) had income between 500-1000, 47.4% of parents ( $n = 9$ ) had income between 1000 -1500, 26.3% of parents ( $n = 5$ ) had income between 2000 -2500, and 5.3% of parents ( $n = 1$ ) had income over 2500 TL<sup>2</sup> (See Table 2 for descriptive statistics). Poverty line for Turkey in the year of data collection was 3,834,90 TL.

All of the mothers voluntarily participated and gave written informed consents both for themselves and for their children (see Appendix A for informed consent).

**Table 2.2** Demographic Characteristics for Low SES Families

	<b>Mothers</b>	<b>Fathers</b>
<b>Age (Mean; SD)</b>	31.1; 6.48	32.44; 4.75
<b>Education Levels</b>		
Literate	1 (5.3%)	
Primary School	7(36.8%)	9(47.4%)
Secondary School	5(26.3%)	2(10.5%)
High School	4(21.1%)	7(36.8%)
University	2(10.5%)	
<b>Income Levels</b>		
	Parents total	
500-1000TL	3(15.8%)	
1000-1500TL	9(47.4%)	
1500-2000TL		
2000-2500TL	5 (26.3%)	
2500 TL and above	1(5.3%)	

Thus, for the Low SES group biological mothers and for the children in care caregivers who knew the target child well responded to the scales assessing children's

<sup>1</sup> Education level of one of the fathers was not reported.

<sup>2</sup> Income level of family was not reported.

development in many domains. On average, one child-care provider gave information at most for two children.

## **2.2. Measures**

The measures of the study consisted of demographic variables, including the main focus of the study which is the care type of children and their experience history, a questionnaire that were given to primary caregivers related to child temperament, a task to assess children's emotion understanding.

### **2.2.1. Experience History**

Experience History Scale was consisted of various types of questions related to demographic characteristics of children (Berument, 2004) (see Appendix B). Children's age, gender and information about their care history, cause of care placement, length of time spent under the care of social services were collected from children's case files and when necessary from social service staff of the placement.

### **2.2.2. Demographics Questionnaire**

Demographics Questionnaire also consisted of several different questions related to demographic characteristics of mothers and fathers in low SES families (see Appendix C). The questionnaire was developed by Unal, Okur and Beument for the TUBİTAK project. Information about mothers' and fathers' education levels, professions, monthly incomes, marital statuses were gathered by this questionnaire.

### 2.2.3. Child Temperament Measure

Children's Behavior Questionnaire (CBQ) was used to assess children's temperament (Rothbart, Ahadi, Hershey & Fisher, 2001). The questionnaire has been designed to measure individual differences in children whose age range differs from 3 to 7 years. Rather than grouping children into categories, the scale has been developed to identify underlying dimensions of temperament. Originally, the standard form of the scale consists of 195 items measuring 15 different domains of temperament. In the present study, four of the domains were taken namely, *Anger/Frustration*, *Falling Reactivity and Soothability*, *Inhibitory Control* and *Perceptual Sensitivity*. Respectively, there were 13 items in *Anger/Frustration* subscale that is specifying the degree of negative affect expressed by the child against interruption of a task or being prevented from reaching a goal (e.g. "Gets angry when s/he can't find something s/he wants to play with"). Reliability of this scale in the original version is .76 (see Section 3.4. for reliability analysis results of the scale for the present study). There were 13 items in *Falling Reactivity and Soothability* subscale that is related to getting better in over stress, excitement or arousal conditions (e.g. "Calms down quickly following an exciting event"). Reliability of this scale in the original version is .80. There were also 13 items in *Inhibitory Control* subscale that is measuring ability to resist inappropriate motivations for doing something and control for responses (e.g. "Is able to resist laughing or smiling when it isn't appropriate"). Reliability of this scale is in the original version.74. Lastly, there were 12 items in *Perceptual Sensitivity* subscale which is related to sensation of low intensity stimulus (e.g. "Notices the smoothness or roughness of objects s/he touches"). Reliability of this scale is in the original version.77 (Rothbart, Ahadi, Hershey & Fisher, 2001). Because there is no comparable other temperament questionnaire in Turkish measuring these domains of temperament, the Turkish Version of Children's Behavior Questionnaire is generated through translation and back-translation method for this study. There were total of 51 items in this version of questionnaire and items were rated on a 5-point Likert scale (1 = very untrue and

5 = very true). Higher scores indicated a greater level of the corresponding temperamental trait (see Appendix D).

#### **2.2.4. Emotion Understanding Measures**

To assess the level of emotion understanding abilities of children, two tasks were developed for this study; the first one was emotion recognition from pictures and the second one was emotion comprehension from stories. Details of the task are explained below.

##### **2.2.4.1. Emotion Recognition Task**

In this task, facial and body expressions of emotions were used to determine emotion understanding level of children. Several studies have found that children show successful emotion recognition when presented photos with only facial expressions. However, children are not always able to identify some emotions when bodily expressions are absent (Tuminello & Davidson, 2011). It is because expressions of emotions cannot be easily identified if some clues related to expressions themselves are removed. However, certain aspects of emotional expressions can be still captured. Therefore, emotion recognition was measured across two conditions namely; *face-only* and *face+body conditions*.

*Happiness, sadness, fear, surprise, shame and pride* were chosen because the first four are considered as basic emotions and last two are referred as higher-order emotions (Harris, 1989). Thus, it was expected that type of emotions might also give information about children's understanding level.

For this task, photographs of two female and two male models were generated for six emotional and a neutral expressions in two conditions. Emotional expressions of same models were used to create two distinct stimuli for each emotion either face-only or face+body conditions. Consequently, 56 experimental photos have

been constructed with two male and two female models (for the examples of photographs see Appendix E). Therefore, one emotion was asked eight times within two conditions.

For each emotion photographs of seven different models' were taken. Then all photographs were validated by undergraduate and graduate psychology students who were unfamiliar with pictures as in similar studies (e.g., Tuminello & Davidson, 2011). In the first rating process, 23 participant students were asked to label the emotion for each presented 49 photographs. Then they were asked to match the emotions from the given emotion list to the facial and body expressions in the photos. Presentation order of emotions was varied across seven different models. The correct report of given emotions rate was ranging between 52% and 100%. The photos were modified and some of the models were changed according to those responses.

Then, second ratings were done with 12 non-psychology students who were unfamiliar with the nature of the study. The same process was followed with the modified sets of photographs of seven different models. The correct report of given emotions rate was ranging between 75% and 100%. Based on the second ratings, photographs of four models with the highest correct ratings were chosen. The correct report of given emotions rate ranged between 93% and 100% among those four models.

The chosen four models had taken theater courses and they were good at emotional expressions. Emotion instructions had been given to those models adapted from Ekman and Friesen (1975). In both conditions, the photographs of four models were arranged as no background by using a computer program. From those final edited versions of photos, two Power Point presentations were prepared. There were 24 slides in both of them. Each slides consisted of three photos. One of them was the target emotion, one of them was another emotional

photo and the last one was natural photo of the same model. Order of the target emotion and presentation order of all three photos were all random.

#### Scoring:

The number of correct answers for each emotion was calculated for each condition separately. Children were scored on a scale of 0 to 4 for each of the emotion under each condition. Consequently, children got a composite score that was ranged of 0 to 8 for each emotion.

#### **2.2.4.2. Emotion Comprehension Task**

The assessment of emotion comprehension was adapted from the assessment method generated originally by Howlin et al. (1999) for determining the level of emotion understanding. There are five possible levels in this assessment. The first two levels include identification of emotions from pictures and drawings, and next three levels include identification emotions from short vignettes. Accordingly, the last three level of the original measurement method was used in the current study. These three levels were based on identifying *situation-based emotions*, *desire-based emotions* and *belief-based emotions* respectively.

In the first level, all six emotions that were presented in emotion recognition task were also assessed as situation-based emotions, namely happiness, sadness, fear, surprise, pride and shame. The second level was including stories with emotions of happiness and sadness as desire-based emotions. The last level included stories with emotions of surprise and fear as belief based emotions (see Appendix F).

Stories for all levels included different emotional content. The stories were written by the researcher and some undergraduate psychology students who worked in the project helped. Three different stories for each emotion in each condition were validated by 30 undergraduate and graduate psychology students who were unfamiliar with the stories. They were asked to write a name of emotion from the

list for each story which they think the character in the story feels. Among 30 stories 20 stories were chosen based on those ratings (the highest correct ratings were chosen and rates were changing between 97% and 100%). The chosen stories for each emotion were randomly distributed to stories of male and female characters.

For each level, two stories were read to a child for all emotions and the child was asked to match the unlabeled emotion in the story to by pointing the drawings of emotions.

The drawings based on photographs that were used in emotion recognition task were drawn by hand and they were printed in black and white color. The drawings were representing a female and a male character with facial expressions and body poses compatible with determined emotions. The drawings represent each of the emotions just as in the photographs in body+face condition of emotion recognition task. The only difference was child characters were portrayed. Cards were prepared including drawings of two emotions in a random order.

#### Scoring:

For each emotion story, children were given a score of 1 if they gave the correct response and 0 for incorrect responses. A total emotion comprehension score was calculated by taking the sum of the children's scores on each with possible scores ranging from 0 to 12 for situation based, 0 to 4 for desire based, and 0.4 for belief based. The children can get an overall score for ranged from 0 to 20.

### **2.3. Procedure**

The general procedure for how the present study was conducted can be described broadly in two sections. The first section involves the procedure for the tasks before the data collection which are getting permissions, translation of materials

and preparation of stimulus. In the second section the data collection procedure will be explained in detail.

### **2.3.1. Getting Permissions**

Present study was carried out as part of a three year longitudinal project titled "Longitudinal investigation of the effects of temperament, and care type on the developmental outcomes of infant and children who are under the care of social services" funded by TÜBİTAK. Therefore, ethical approval was taken from the Human Subjects Ethics Committee of Middle East Technical University and also all the permissions have been already taken from the Ministry of Family and Social Policies.

### **2.3.2 Translation of the materials**

In consideration of ethical issues, contacts have been already established with the author of the temperament scale (Children's Behavior Questionnaire) and permission had taken from Rothbart's for using the scale in this study. Firstly, the chosen subscales of the standard form of English version were translated to Turkish and back translation procedure was done in order to generate valid Turkish versions of these subscales. The items were translated into Turkish by the researcher and then the items were checked by the researcher's supervisor. The back translation was made, another student in psychology department who had taken translation course. After that, the original form was compared with the translation and back translation form. Semantic context of items was also taken into consideration and some items were modified.

### **2.3.4 Data Collection procedure**

Since this study was carried out as part of a larger investigation, all of the children were given a series of tasks either in their homes or institutions. Each child



completed the tasks in the following order: Emotion Recognition Task and Emotion Comprehension Task. Both of the emotion understanding tasks were divided into two and tasks were given at two different times in order to overcome possible task demands. In the first session, children saw photographs in face+body condition and they listened to the stories of characters whose gender was matched with their own. In the second session, they saw photographs in face+only condition and they listened to stories about characters of the other gender. One session took approximately 30 minutes to complete. Children were taken and tested individually in a quiet room. Moreover, the main caregivers were asked to fill out the questionnaires. When they were able to read and they were available, they completed by themselves. In other circumstances the researcher read all the questions and marked the responses.

In the emotion recognition task, the experimenter showed three photographs in a computer screen in a random order and asked the child to show the picture of labeled emotion (e.g., ‘Show me the \_\_\_\_\_ face.’). Children had been asked each of six emotions four times in two conditions at the end. Therefore, the pictures were presented in two form of face-only and face+body.

After that, children were read two short vignettes for each of the emotions at each level. All the vignettes included only one emotion domain. First six stories in both sections, female or male characters, included situation-based emotions. The following four stories were related to desire-based emotions. The last four stories were about belief-based emotions. A child's task was to find out the related emotion in the story and to choose from two pictures of two different emotions presented at a time. (e.g., After reading the story: ‘How does she/he feel like do you think? Show me from these pictures.’).

Two pilot studies had been done before the data collection with one child from high SES and one child from low to middle SES. They were both 4-year-olds. The child from high SES got full scores in all emotion understanding tasks, while the

other child got lower scores. According to their performance slight changes were made in the instructions of tasks and the tasks took their explained final forms.

## **CHAPTER 3**

### **RESULTS**

This chapter consists of seven main parts; data screening and cleaning, descriptive statistics, bivariate correlations of all variables, reliability analyses of the Child Behavior Scale (CBQ), results for t-test analysis for deciding emotion recognition scoring, results for analyses of variance to make group comparisons, four different sets of hierarchical regression analyses to examine the moderating effect of two temperamental characteristics (anger/frustration and perceptual sensitivity) on emotion understanding. All the analyses were computed with SPSS 20.

#### **3.1. Data Screening and Cleaning**

Prior to main analyses, the data were examined through various SPSS programs for accuracy of data entry, missing values, and fit between their distribution and the assumptions for multivariate analysis.

First of all, the data was controlled for false entry. When the minimum and maximum values are compared with information of measures, there was no out-of-range values were found. Then, analysis for missing data was done. Throughout 124 cases, although there were missing values for some of the domains of all variables that were emotion understanding, temperament and experience history, missing values were inspected within subscales since their composite scores were to be included in the analyses.. Therefore, a total of 13 cases were deleted due to the fact that two cases had none of the scores for subparts of emotion understanding assessment or subscales of temperament, and 11 cases did not have both of the scores for emotion understanding subparts. Then, univariate outliers were investigated through examining z-scores. Among 28 variables, one univariate outlier was found in perceptual sensitivity score

which was the cases with standardized scores of -3.40 in excess of 3.29 ( $p < .001$ ), and it was ignored because of the nature of the sample. To identify and deal with non-normal variables, skewness, kurtosis and probability plots were checked for all variables. None of the variables were found as problematic in terms of skewness and kurtosis, and p-plots. Then, linearity and homoscedasticity were checked with scatter-plots. According to scatter-plots, the assumptions were met for linearity and homoscedasticity. To identify and deal with multivariate outliers, mahalanobis distance was measured. No cases were identified as multivariate outliers with greater mahalanobis distance with critical value of 49.73,  $p < .001$ . Lastly, correlation matrix was checked to control multicollinerity and singularity. There was no correlation above .90 in the correlation matrix. In conclusion, further analyses were conducted with 111 cases ( $N = 111$ ).

### **3.2. Descriptive Analyses**

Descriptive measures for experience history, emotion understanding and temperamental characteristics were shown in the Table 3.1. Total risk was a composite score for experience history scale that was constituted from sum off all risk factors determined as cause of placement in the scale.

**Table 3.1** Descriptive Statistics for Measures of the Study ( $N = 111$ )

		Min.	Max.	Mean	SD
<b>Institution</b>	<b>Experience History</b>				
	Total Risk	1,00	3,00	1,7742	,72
	Time spent in care	1,00	48,00	22,81	18,32
	<b>Temperament</b>				
	Anger/Frustration	17	56	35,19	8,88
	Inhibitory Control	37	63	47,63	6,22
	Falling Reactivity & Soothability	35	65	49,50	7,61
	Perceptual Sensitivity	17	54	43,09	9,11
	<b>Emotion Understanding</b>				
	Emotion Recognition	7,00	38,00	27,23	6,92
	Emotion Comprehension	8,00	17,00	12,80	2,64
	Happy	,17	1,00	,68	,23
	Sad	,33	1,00	,69	,20
	Afraid	,33	1,00	,74	,18
	Surprised	,25	,92	,59	,18
	Pride	,00	,80	,45	,17
	Shame	,00	,90	,40	,22
	Total	20,00	55,00	40,61	8,03
<b>Care Village</b>	<b>Experience History</b>				
	Total Risk	1,00	5,00	2,28	1,02
	Time spent in care	2,00	55,00	18,65	17,71
	<b>Temperament</b>				
	Anger/Frustration	19	53	35,64	7,73
	Inhibitory Control	29	61	46,89	8,40
	Falling Reactivity & Soothability	34	64	47,82	7,50
	Perceptual Sensitivity	23	55	42,32	8,41
	<b>Emotion Understanding</b>				
	Emotion Recognition	19,00	44,00	32,18	6,13
	Emotion Comprehension	7,00	20,00	13,11	3,88
	Happy	,33	1,00	,80	,22
	Sad	,25	1,00	,79	,18
	Afraid	,33	1,00	,82	,18
	Surprised	,25	1,00	,63	,20
	Pride	,30	1,00	,52	,21
	Shame	,10	,80	,40	,16
	Total	26,00	61,00	45,22	9,06
<b>Child Home</b>	<b>Experience History</b>				
	Total Risk	1,00	4,00	2,23	1,04
	Time spent in care	2,00	43,00	16,73	12,30
	<b>Temperament</b>				
	Anger/Frustration	20	61	38,28	9,82
	Inhibitory Control	29	59	44,10	7,31
	Falling Reactivity & Soothability	26	62	45,90	8,68
	Perceptual Sensitivity	32	56	43,45	6,48
	<b>Emotion Understanding</b>				
	Emotion Recognition	20,00	38,00	29,86	5,90
	Emotion Comprehension	6,00	17,00	12,33	2,70

**Table 3.1 continued** Descriptive Statistics for Measures of the Study ( $N = 111$ )

<b>Low SES</b>	Happy	,25	1,00	,77	,20
	Sad	,42	1,00	,74	,18
	Afraid	,33	1,00	,75	,21
	Surprised	,33	,92	,64	,17
	Pride	,00	1,00	,40	,22
	Shame	,10	,80	,34	,18
	Total	28,00	55,00	41,85	7,90
	<b>Temperament</b>				
	Anger/Frustration	28	56	42,16	7,24
	Inhibitory Control	34	55	44,79	7,00
	Falling Reactivity & Soothability	32	62	46,21	7,78
	Perceptual Sensitivity	38	58	48,42	5,55
	<b>Emotion Understanding</b>				
	Emotion Recognition	11,00	42,00	31,74	8,39
	Emotion Comprehension	9,00	18,00	14,00	2,12
	Happy	,25	1,00	,80	,23
	Sad	,33	1,00	,83	,20
	Afraid	,50	1,00	,86	,17
	Surprised	,17	,92	,62	,20
	Pride	,30	,90	,54	,17
	Shame	,20	,70	,39	,17
	Total	23,00	59,00	46,41	9,79

### 3.3. Correlation Analyses

Pearson's bivariate correlation analyses were performed in order to understand the relationship between experience history, temperamental characteristics and emotion understanding abilities of children (see Table 3.2).

#### 3.3.1. Correlations between Temperamental Characteristics

Based on the bivariate correlation results of temperamental characteristics, anger/frustration was found to be negatively correlated with falling reactivity & soothability ( $r = -.60$ ,  $p < .01$ ) and inhibitory control ( $r = -.40$ ,  $p < .01$ ). In addition, inhibitory control was found to be positively correlated with falling reactivity & soothability ( $r = .48$ ,  $p < .01$ ) and perceptual sensitivity ( $r = .35$ ,  $p < .01$ ).

### **3.3.2. Correlations between Emotion Understanding Domains**

According to correlation analyses for emotion understanding domains, total emotion comprehension and emotion recognition scores were positively correlated with each other ( $r = .48, p < .01$ ). Happy emotion scores were positively correlated with sad ( $r = .49, p < .01$ ), afraid ( $r = .64, p < .01$ ), surprise ( $r = .47, p < .01$ ) and pride ( $r = .38, p < .01$ ). Moreover, sad emotion scores were positively correlated with afraid ( $r = .61, p < .01$ ), surprise ( $r = .34, p < .01$ ) and pride ( $r = .30, p < .01$ ). Lastly, afraid emotion scores were positively correlated with surprise ( $r = .42, p < .01$ ), pride ( $r = .33, p < .01$ ) and shame ( $r = .25, p < .01$ ).

### **3.3.3. Correlations between Risk Factors and Temperamental Characteristics**

Bivariate correlations between risk factors and temperamental characteristics indicated that emotional abuse and falling reactivity & soothability trait were negatively correlated with each other ( $r = -.26, p < .01$ ). Other risk factors were not significantly correlated with any of the child temperament domains.

### **3.3.4. Correlations between Risk Factors and Emotion Understanding Domains**

According to correlation analyses between risk factors and emotion understanding domains, mothers' psychological disorder was negatively correlated with overall emotion understanding ( $r = -.23, p < .05$ ) and understanding of surprise ( $r = -.27, p < .05$ ). Imprisonment of mother was found to be positively correlated with understanding emotion of shame ( $r = .26, p < .05$ ). Death of mother was found to be positively correlated with overall emotion understanding ( $r = .23, p < .05$ ), emotion recognition ( $r = .23, p < .05$ ) and understanding emotion of pride ( $r = .28, p < .05$ ). Divorce was positively correlated with overall emotion understanding ( $r = .30, p < .01$ ), emotion recognition ( $r = .29, p < .05$ ),

understanding emotion of sadness ( $r = .34, p < .01$ ), and understanding emotion of afraid ( $r = .25, p < .01$ ). Physical abuse was negatively correlated with overall emotion understanding ( $r = -.27, p < .05$ ), emotion comprehension ( $r = -.30, p < .01$ ), understanding emotion of happiness ( $r = -.27, p < .01$ ), and understanding emotion of afraid ( $r = -.29, p < .01$ ). Death of father was found to be negatively correlated with understanding emotion of happiness ( $r = -.37, p < .01$ ). Sexual abuse to mother was negatively correlated with overall emotion understanding ( $r = -.26, p < .05$ ), emotion comprehension ( $r = -.27, p < .05$ ), understanding emotion of surprise ( $r = -.26, p < .05$ ). In addition, length of time spent under the care of social services was positively correlated with understanding emotion of happiness ( $r = .26, p < .05$ ). Partial correlation between length of time spent under care and happiness indicated positive correlation ( $r = .27, p < .05$ ). even after controlling for age. Lastly, extramarital sex was negatively correlated with sadness ( $r = -.26, p < .05$ ).

### **3.3.5. Correlations between Temperamental Characteristics and Emotion Understanding Domains**

Correlation analyses examining the relationship between temperament and emotion understanding indicated that inhibitory control trait was positively correlated with emotion comprehension ( $r = .23, p < .05$ ). In addition, perceptual sensitivity trait was positively correlated with emotion comprehension ( $r = .24, p < .05$ ), understanding emotion of happiness ( $r = .22, p < .05$ ), and understanding emotion of afraid ( $r = .22, p < .05$ ).



**Table 3.2** Pearson's Correlations among all Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>1. Recognition</b>	1														
<b>2. Comprehension</b>	,475**	1													
<b>3. Total Emotion Undersranding</b>	,953**	,720	1												
<b>4. Happiness</b>	,784**	,586**	,821**	1											
<b>5. Sadness</b>	,656**	,582**	,719**	,492**	1										
<b>6. Afraid</b>	,766**	,666**	,834**	,635**	,613**	1									
<b>7. Surprised</b>	,614**	,395**	,621**	,472**	,339**	,415**	1								
<b>8. Pride</b>	,536**	,352**	,545**	,384**	,298**	,330**	,171	1							
<b>9. Shame</b>	,385**	,205*	,374**	,174**	,069	,247*	-,010	,108	1						
<b>10. Anger/Frustration</b>	,146	-,037	,109	,060**	,076	,140	,087	,115	-,045	1					
<b>11. Falling Reactivity &amp; Soothability</b>	,024	,098	,059	,081	,071	,085	-,053	-,037	,086	-,602**	1				
<b>12. Inhibitory Control</b>	,011	,232*	,072	,109	,130	,075	,010	-,122	,105	-,400**	,476**	1			
<b>13. Perceptual Sensitivity</b>	,177	,240*	,183	,216	,106	,217*	,016	,071	,069	,184	,094	,346**	1		
<b>14. Total Time</b>	,209	,081	,192	,262	,058	,049	,167	,101	,048	,085	-,003	,029	-,016	1	
<b>15. Total Risk</b>	-,040	-,209	-,129	-,132	-,019	-,091	,009	-,247*	-,049	,214	-,200	-,199	,096	-,189	1

\*Significant correlation at the .05 level (2-tailed), \*\* Significant correlation at the .01 level (2-tailed)

### **3.4. Results for Reliability Analyses**

For all factors in the Child Behavior Questionnaire (CBQ), internal reliabilities were calculated. The results indicated that Cronbach's alpha coefficient for *Anger/Frustration* was .79, for *Inhibitory Control* was .70, for *Falling Reactivity and Soothability* was .77, and for *Perceptual Sensitivity* was .76. Cronbach's alpha coefficient for overall scale was also .71 that was indicating quite high reliability coefficient.

**Table 3.3** Reliabilities for Subscales of Child Behavior Questionnaire (CBQ)

	<i>n</i>	<i>α</i>
<b><i>Subscale 1: Anger/Frustration</i></b>	<b>13</b>	<b>.79</b>
Gets angry when told s/he has to go to bed.		
Rarely gets irritated when s/he makes a mistake.		
Has temper tantrums when s/he doesn't get what s/he wants.		
Gets quite frustrated when prevented from doing something s/he wants to do.		
Gets mad when even mildly criticized.		
Gets angry when s/he can't find something s/he wants to play with.		
Rarely gets upset when told s/he has to go to bed.		
Becomes easily frustrated when tired.		
Gets irritable about having to eat food s/he doesn't like.		
Rarely protests when another child takes his/her toy away.		
Easily gets irritated when s/he has trouble with some task (e.g., building, drawing, and dressing).		
Gets angry when called in from play before s/he is ready to quit.		
Gets mad when provoked by other children.		
<b><i>Subscale 2: Falling Reactivity &amp; Soothability</i></b>	<b>13</b>	<b>.77</b>
Has a hard time settling down for a nap.		
Calms down quickly following an exciting event.		
Can be "cheered up" by talking about something s/he is interested in.		
Has a hard time settling down after an exciting activity.		
When angry about something, s/he tends to stay upset for ten minutes or longer.		
Seems to forget a bump or scrape after a couple of minutes.		
Changes from being upset to feeling much better within a few minutes.		
Falls asleep within ten minutes of going to bed at night.		
If upset, cheers up quickly when s/he thinks about something else.		
Is easy to soothe when s/he is upset.		
Is very difficult to soothe when s/he has become upset.		
Has a hard time going back to sleep after waking in the night.		
Rarely cries for more than a couple of minutes at a time.		
<b><i>Subscale 3: Inhibitory Control</i></b>	<b>13</b>	<b>.70</b>
Can lower his/her voice when asked to do so.		
Is good at games like "Simon Says," "Mother, May I?" and "Red Light, Green Light."		
Has a hard time following instructions.		
Prepares for trips and outings by planning things s/he will need.		
Can wait before entering into new activities if s/he is asked to.		
Has difficulty waiting in line for something.		
Has trouble sitting still when s/he is told to (at movies, church, etc.).		
Is able to resist laughing or smiling when it isn't appropriate.		

**Table 3.3 continued** Reliabilities for Subscales of Child Behavior Questionnaire

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Is good at following instructions.		
Approaches places s/he has been told are dangerous slowly and cautiously.		
Is not very careful and cautious in crossing streets.		
Can easily stop an activity when s/he is told "no."		
Is usually able to resist temptation when told s/he is not supposed to do something.		
<b>Subscale 4: Perceptual Sensitivity</b>	<b>12</b>	<b>.76</b>
Notifies the smoothness or roughness of objects s/he touches.		
Usually doesn't comment on changes in parents' appearance.		
Notifies it when parents are wearing new clothing.		
Seems to listen to even quiet sounds.		
Comments when a parent has changed his/her appearance.		
Doesn't usually comment on people's facial features, such as size of nose or outh.		
Is quickly aware of some new item in the living room.		
Usually comments if someone has an unusual voice.		
Does not seem to notice parents' facial expressions.		
Doesn't usually react to different textures of food.		
Notifies even little specks of dirt on objects.		
Doesn't usually notice odors, such as perfume, smoke, cooking, etc.		

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### 3.5. Results of t-test for Emotion Recognition

First of all, a paired sample *t*-test was calculated to see whether there is a difference in children's understanding of emotions from the photos including whole body or face and body conditions. Results indicated that a paired samples *t*-test failed to reveal a statistically reliable difference between the mean scores of children in *face+body* condition ( $M = 15.22$ ,  $SD = 4.04$ ) and in *face-only* condition ( $M = 14.82$ ,  $SD = 3.52$ ),  $t(105) = 1.37$ ,  $p = .174$ ,  $\alpha = .05$ . Therefore, in the rest of the analyses scores from these two conditions are summed and totals are used.

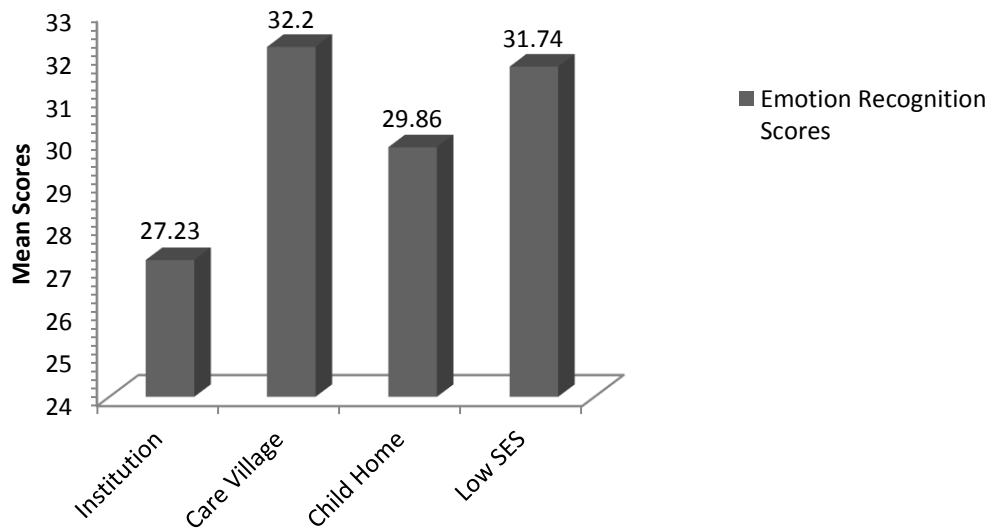
### 3.6. Results for Analyses of Variance (ANOVA)

In order to investigate whether children's understanding of emotions differ based on the care types a series of ANOVAs were conducted. First, one way ANOVAs

were carried out both for emotion recognition and emotion comprehension total scores. Second, mixed (6x4) within (emotion types) between (care types) ANOVA for Emotion Recognition was conducted. Third, mixed (3x4) within (story types) between (care types) ANOVA for Emotion Recognition was conducted.

### **3.6.1. Results for one-way between subjects ANOVAs for Emotion Recognition and Emotion Comprehension in terms of Care Types**

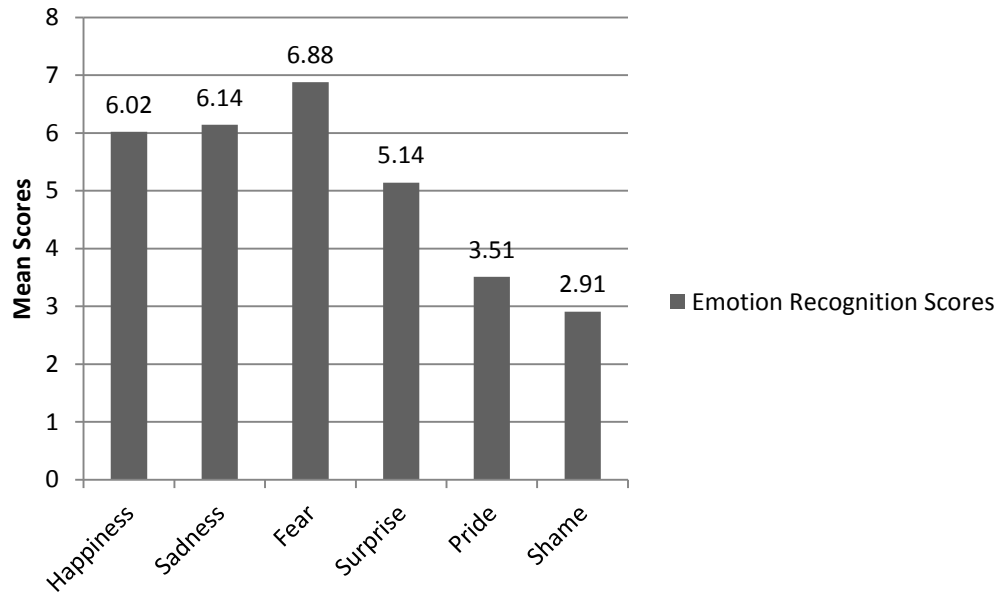
Two separate one-way between subjects ANOVAs were performed on two dependent variables which were *Emotion Recognition* and *Emotion Comprehension* scores of children. Independent variable was again care type (institution, care village, child home and low SES). There was a significant difference between the groups in terms of emotion recognition scores,  $F(3, 102) = 3.13, p < 0.05$ . Post hoc comparisons using the Benferroni correction method indicated that the mean *recognition score* for institution group ( $M = 27.23, SD = 6.92$ ) was significantly lower than care village group ( $M = 32.20, SD = 1.16$ ). In addition, the mean *recognition score* for institution group was also significantly lower than low SES group ( $M = 31.74, SD = 8.40$ ). Besides, child home group ( $M = 29.86, SD = 5.90$ ) did not significantly differ from other groups. Therefore, these results suggest that children in care villages and low SES homes show better performance on emotion recognition task than children in institutional care. However, there was no significant effect of care type on *emotion comprehension*,  $F(3, 100) = 1.20, p = .314$ .



**Figure 3.1** Results for one-way between subjects ANOVA for Emotion Recognition

### 3.6.2. Results for mixed ANOVAs for Emotion Types in Emotion Recognition

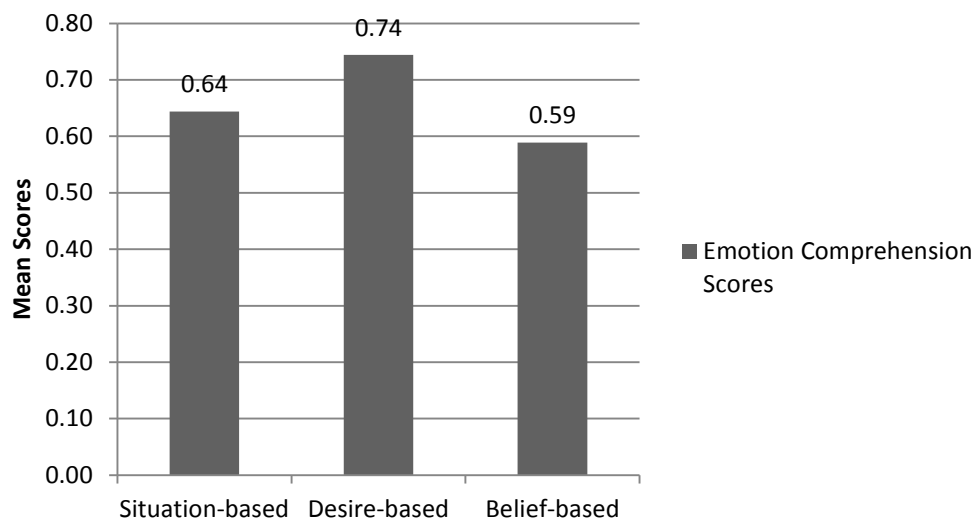
A 6x4 ANOVA with emotions (happy, sad, afraid, surprised, pride, shame) and care types (institution, care village, child home, low SES) as between-subjects factors revealed a main effects of emotions,  $F(5, 510) = 107.003$ ,  $p < .001$ ,  $\eta_p^2 = .512$ , and care types,  $F(1, 102) = 3.128$ ,  $p < .05$ ,  $\eta_p^2 = 0.084$ . These main effects were not qualified by an interaction between emotions and care types,  $F(15, 110) = 1.231$ ,  $p = .24$ ,  $\eta_p^2 = .035$ . Main effect of care types revealed that children in institution ( $M = 4.57$ ,  $SD = .21$ ) were worse at identifying all emotions than children in care village ( $M = 5.44$ ,  $SD = .22$ ) and low SES homes ( $M = 5.34$ ,  $SD = .27$ ). Main effect of emotions revealed that children were better at identifying **fear** ( $M = 6.88$ ,  $SD = .17$ ) than all other emotions. Moreover, all of the children showed worse performance on identifying **shame** ( $M = 2.91$ ,  $SD = .17$ ) and **pride** ( $M = 3.51$ ,  $SD = .18$ ) compared to **surprise** ( $M = 5.14$ ,  $SD = .19$ ), **sadness** ( $M = 6.14$ ,  $SD = .17$ ), and **happiness** ( $M = 6.02$ ,  $SD = .20$ ). In addition, children showed better performance on surprise than shame and pride, but worse than happiness and sadness.



**Figure 3.2** Results for mixed between-within subjects ANOVA for Emotion Types in Emotion Recognition

### 3.6.3. Results for mixed between-within subjects ANOVAs for Story Types in Emotion Comprehension task in terms of Care Types

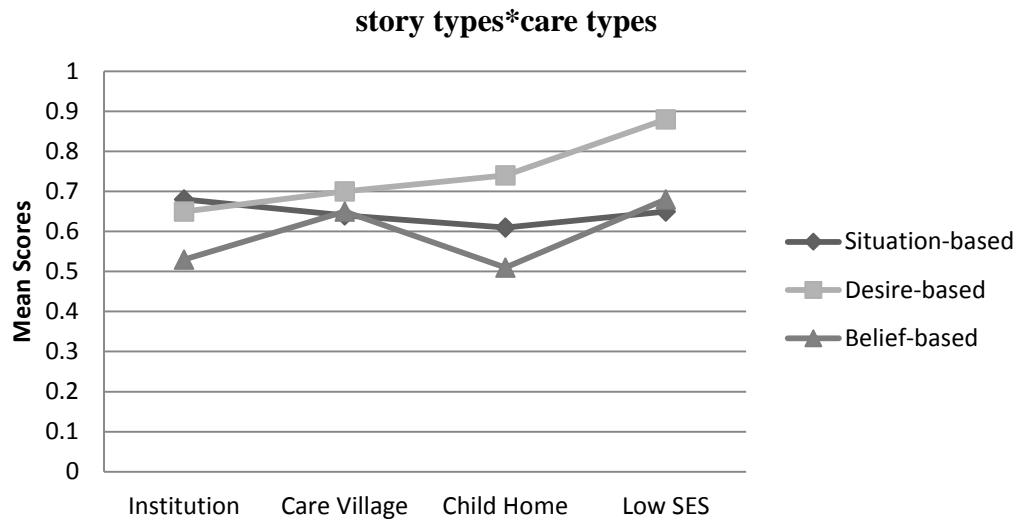
A 3x4 ANOVA with story type (situation based, desire based, belief based) and care types (institution, care village, child home, low SES) as between-subjects factors revealed a main effects of stories,  $F(2, 200) = 16.389, p < .001, \eta_p^2 = .141$ , and care types,  $F(3, 100) = 2.264, p = .086, \eta_p^2 = 0.064$ . These main effects were qualified by an interaction between story types and care types,  $F(6, 200) = 2.832, p < .05, \eta_p^2 = .078$ . Main effect of care types revealed that children in low SES ( $M = .735, SD = .04$ ) were better at identifying all stories than children in child homes ( $M = .620, SD = .03$ ) and institutions ( $M = .617, SD = .03$ ). Main effect of stories revealed that all of the children were better at understanding **desire-based emotions** ( $M = .744, SD = .03$ ) than **situation-based emotions** ( $M = .644, SD = .02$ ) and **belief-based emotions** ( $M = .589, SD = .03$ ). Moreover, all of the children showed worse performance on understanding belief-based emotions.



**Figure 3.3** Results for mixed between-within subjects ANOVA for Story Types in Emotion Comprehension

In addition to these, it was found that type of stories had a different effect on emotion understanding of children in different care types. Specifically, residing in **care village** did not have an effect on understanding of emotions from different types of stories. However, children in **institutions** were significantly better at understanding situation based stories ( $M = .68$ ,  $SD = .03$ ) than desire ( $M = .65$ ,  $SD = .05$ ) or belief based ( $M = .53$ ,  $SD = .05$ ) stories. Moreover, children in **child homes** were significantly better at understanding desire based stories ( $M = .74$ ,  $SD = .05$ ) than situation ( $M = .61$ ,  $SD = .03$ ) or belief based ( $M = .51$ ,  $SD = .05$ ) stories. They were also significantly better at understanding situation based stories rather than belief based ones. Lastly, children in **low SES homes** were significantly better at understanding desire based stories ( $M = .88$ ,  $SD = .06$ ) than situation ( $M = .65$ ,  $SD = .04$ ) or belief based ( $M = .68$ ,  $SD = .06$ ) stories (see Figure 3.1).





**Figure 3.4** Interaction effect between story types and care types in emotion comprehension task

### 3.7. Results for Hierarchical Regression Analyses

In order to investigate the moderating role of temperament (anger/frustration and perceptual sensitivity) on the emotion understanding ability, four sets of hierarchical regression analyses were carried out for each outcome variable (emotion understanding ability) in order to investigate two possible temperamental interactions.

#### 3.7.1. Results for Moderating Role of Anger/Frustration Trait among all care types

At first, seven hierarchical regression analyses were performed to test the moderating role of anger/frustration with each outcome variables (overall emotion understanding which means sum of the scores of emotion recognition and emotion comprehension, and scores for happy, sad, afraid, surprised, pride, and shame emotions in overall scores). For all of those analyses, age and gender were entered in **the first step** to see whether emotion understanding scores change according to age or gender and in **the second step** temperamental domains were entered. Then,

in **the third step** dummy coded care types were entered where low SES was taken as a comparison group. In **the fourth step**, in order to see whether anger/frustration interacted with care types, interaction variables were entered. According to these analyses, emotions of happiness, fear, pride and shame when taken as dependent variable, the only significant effect was age in the first step, so they will not be reported further.

**Table 3.4** Summary of Regression Results for Moderator of Anger/Frustration

IVs	EU	Happiness	Sadness	Fear	Surprise	Pride	Shame
Age	√ (+)	√ (+)	√ (+)	√ (+)	√ (+)	√ (+)	
Gender							
Anger/frustration							
Inhibitory Control							
Soothability							
Perceptual sensitivity							
Institution			√ (-)				
Care village							
Child home					√ (+)		
Anger*Institutions							
Anger*Childhome							
Anger*Care village					√		

√ relationship between iv and dv was significant, (+) iv positively predicted dv.

### 3.7.1.1. Anger/Frustration as a Moderator in Predicting Overall Emotion Understanding

In **the first step**, age and gender were entered and it provided statistically significant results,  $R^2 = .30$  (adjusted  $R^2 = .28$ ),  $F(2, 93) = 19.54$ ,  $p < .001$ . The effect of age ( $\beta = .54$ ,  $p < .001$ ) positively predicted emotion understanding ability. In **the second step**, four temperamental characteristics were added and the result indicated that those variables did not account for any additional variance in predicting overall emotion understanding,  $R^2 = .31$  (adjusted  $R^2 = .27$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(4, 89) = .56$ ,  $p = .69$ . For **the third step**, care types were added but they did not make significant contribution to the explained variance in the equation,  $R^2 = .32$  (adjusted  $R^2 = .25$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(3, 86) = .48$ ,  $p = .70$ . In **the fourth step**, when the interaction variables were entered into the equation they did not make

significant contribution to the explained variance,  $R^2 = .33$  (adjusted  $R^2 = .24$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(3, 83) = .33$ ,  $p = .80$ . When all the variables were in the equation, only effect of age ( $\beta = .49$ ,  $p < .001$ ) yielded significant results, but the other variables did not make significant contribution.

**Table 3.5** Hierarchical Regression Analysis in Predicting the Overall Emotion Understanding: Anger/Frustration as a Moderator

		Anger/Frustration							
	Predictors	R	R <sup>2</sup>	$\Delta R^2$	F	F <sub>inc</sub>	B	SE	B
<b>Step 1</b>		<b>.54</b>	<b>.30</b>	<b>.30</b>	<b>19.54***</b>	<b>19.54</b>	<b>5.06</b>	<b>6.73</b>	
	Gender						.17	1.55	.01
	Age						.77	.12	<b>.54***</b>
<b>Step 2</b>		<b>.56</b>	<b>.31</b>	<b>.02</b>	<b>6.76***</b>	<b>.56</b>	<b>5.79</b>	<b>6.92</b>	
	Gender						.51	1.58	.03
	Age						.74	.13	<b>.53***</b>
	Anger						.06	.12	.06
	Inhibitory C.						.05	.13	.04
	Soothability						.00	.14	.00
	Perceptual S.						.11	.12	.10
<b>Step 3</b>		<b>.57</b>	<b>.32</b>	<b>.25</b>	<b>4.59***</b>	<b>.48</b>	<b>8.40</b>	<b>7.40</b>	
	Gender						1.17	1.69	.07
	Age						.69	.14	<b>.49***</b>
	Anger						.06	.12	.06
	Inhibitory C.						.06	.13	.05
	Soothability						.01	.14	.01
	Perceptual S.						.11	.12	.10
	Institution						-2.72	2.61	-.14
	Care Village						-.49	2.51	-.02
	Child Home						-1.55	2.51	-.08
<b>Step 4</b>		<b>.58</b>	<b>.33</b>	<b>.01</b>	<b>3.44***</b>	<b>.33</b>	<b>8.40</b>	<b>7.51</b>	
	Gender						.95	1.76	.05
	Age						.69	.14	<b>.49***</b>
	Anger						.15	.28	.16
	Inhibitory C.						.06	.14	.05
	Soothability						.00	.14	.00
	Perceptual S.						.12	.12	.11
	Institution						-2.17	2.81	-.11
	Care Village						-.30	2.74	-.02
	Child Home						-1.08	2.75	-.05
	Anger x Institut.						-.10	.32	-.06
	Anger x Child H						-.04	.31	-.02
	Anger x Care V.						-.26	.33	-.12

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , <sup>a</sup>marginally significant, <sup>b</sup>approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.

### 3.7.1.2. Anger/Frustration Trait as a Moderator in Predicting Understanding Sadness

In **the first step**, age and gender were entered and it provided statistically significant results,  $R^2 = .17$  (adjusted  $R^2 = .16$ ),  $F(2, 93) = 9.71$ ,  $p < .001$ . The effect of age ( $\beta = .41$ ,  $p < .001$ ) positively predicted understanding sadness. In **the second step**, four temperamental characteristics were added and the result indicated that those variables did not account for any additional variance in predicting understanding of sadness,  $R^2 = .19$  (adjusted  $R^2 = .14$ ),  $\Delta R^2 = .02$ ,  $F_{inc}(4, 89) = .53$ ,  $p = .72$ . For **the third step**, care types were added and they did not explain additional variance in the equation,  $R^2 = .22$  (adjusted  $R^2 = .14$ ),  $\Delta R^2 = .03$ ,  $F_{inc}(3, 86) = .38$ ,  $p = .38$ . In **the fourth step**, interaction variables were entered, but they did not make significant contribution to the explained variance,  $R^2 = .24$  (adjusted  $R^2 = .13$ ),  $\Delta R^2 = .02$ ,  $F_{inc}(3, 83) = .68$ ,  $p = .57$ . When all the variables were in the equation, effect of age ( $\beta = .36$ ,  $p < .01$ ) yielded significant results. Moreover, effect of institutional care was approaching significance ( $\beta = -.28$ ,  $p = .07$ ), and the other variables did not make significant contribution.

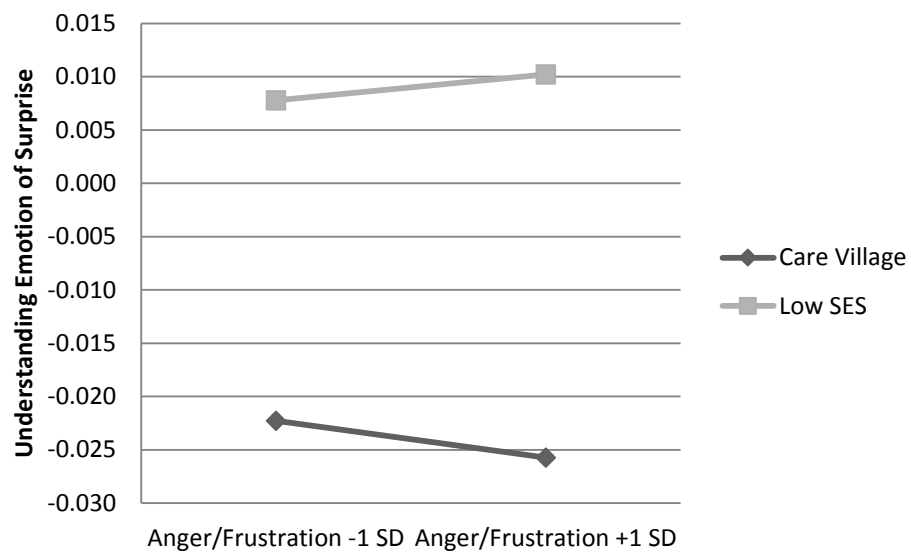
**Table 3.6.** Hierarchical Regression Analysis in Predicting the Emotion of Sadness: Anger/Frustration as a Moderator

		Anger/Frustration							
	Predictors	R	R <sup>2</sup>	$\Delta R^2$	F	Finc	B	SE	B
<b>Step 1</b>		<b>,42</b>	<b>,17</b>	<b>,17</b>	<b>9,71</b>	<b>9,71</b>	,18	,16	,00
	Gender						-,03	,04	-,07
	Age						,01	,00	<b>,41***</b>
<b>Step 2</b>		<b>,44</b>	<b>,19</b>	<b>,02</b>	<b>3,52</b>	<b>,53</b>	,19	,17	,00
	Gender						-,02	,04	-,06
	Age						,01	,00	<b>,39***</b>
	Anger						,00	,00	,10
	Inhibitory C.						,00	,00	,15
	Soothability						,00	,00	,02
	Perceptual S.						,00	,00	-,02
<b>Step 3</b>		<b>,47</b>	<b>,22</b>	<b>,03</b>	<b>2,70</b>	<b>1,03</b>	,27	,18	,00
	Gender						,00	,04	,00
	Age						,01	,00	<b>,35**</b>
	Anger						,00	,00	,09
	Inhibitory C.						,01	,00	,18
	Soothability						,00	,00	,02
	Perceptual S.						,00	,00	-,04
	Institution						-,10	,06	<b>-,24<sup>b</sup></b>
	Care Village						-,05	,06	-,11
	Child Home						-,04	,06	-,10
<b>Step 4</b>		<b>,49</b>	<b>,24</b>	<b>,02</b>	<b>2,17</b>	<b>,68</b>	,27	,18	,00
	Gender						,00	,04	,01
	Age						,01	,00	<b>,36**</b>
	Anger						,00	,01	-,19
	Inhibitory C.						,00	,00	,17
	Soothability						,00	,00	,03
	Perceptual S.						,00	,00	-,03
	Institution						-,12	,07	<b>-,28<sup>b</sup></b>
	Care Village						-,08	,07	-,18
	Child Home						-,07	,07	-,15
	Anger x Institut.						,01	,01	,24
	Anger x Child H						,01	,01	,17
	Anger x Care V.						,00	,01	,08

\*p<.05, \*\*p<.01, \*\*\*p<.001, a marginally significant, b approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.

### 3.7.1.3. Anger/Frustration Trait as a Moderator in Predicting Understanding Surprised

In the first step, age and gender were entered and it provided statistically significant results,  $R^2 = .16$  (adjusted  $R^2 = .14$ ),  $F(2, 93) = 8.71$ ,  $p < .001$ . The effect of age ( $\beta = .39$ ,  $p < .001$ ) positively predicted understanding surprise. In the second step, four temperamental characteristics were added and the result indicated that those variables did not account for any additional variance in predicting surprise,  $R^2 = .17$  (adjusted  $R^2 = .12$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(4, 89) = .35$ ,  $p = .84$ . For the third step, care types were added and it indicated non-significant results, which means this model explained no additional variance in the equation,  $R^2 = .19$  (adjusted  $R^2 = .11$ ),  $\Delta R^2 = .02$ ,  $F_{inc}(3, 86) = .69$ ,  $p = .56$ . In **the fourth step**, interaction variables were entered into the equation but they did not make significant contribution to the explained variance,  $R^2 = .24$  (adjusted  $R^2 = .13$ ),  $\Delta R^2 = .05$ ,  $F_{inc}(3, 83) = 1.61$ ,  $p = .19$ . When all the variables were in the equation, effect of age ( $\beta = .43$ ,  $p < .001$ ) yielded significant results. Moreover, effect of child home care was approaching significance ( $\beta = .26$ ,  $p = .08$ ), and the interaction of anger/frustration trait and being in care village ( $\beta = -.37$ ,  $p < .05$ ) was negatively predict understanding surprise. To examine this interaction, the simple slope analysis was run, and the results showed that the slopes for high anger/frustration ( $b = .030$ ,  $t = .475$ ,  $p = .636$ ), and for low anger frustration ( $b = .036$ ,  $t = .586$ ,  $p = .571$ ) were not significant (see Figure 3.2).



**Figure 3.5** Interaction effect between care village and anger/frustration in understanding surprise

**Table 3.7.** Hierarchical Regression Analysis in Predicting the Emotion of Surprise: Anger/Frustration as a Moderator

		Anger/Frustration							
	Predictors	R	R <sup>2</sup>	$\Delta R^2$	F	Finc	B	SE	B
<b>Step 1</b>		<b>,40</b>	<b>,16</b>	<b>,16</b>	<b>8,71</b>	<b>8,71</b>	,09	,16	,00
	Gender						-,03	,04	-,07
	Age						,01	,00	<b>,39***</b>
<b>Step 2</b>		<b>,41</b>	<b>,17</b>	<b>,01</b>	<b>3,06</b>	<b>,35</b>	,06	,16	,00
	Gender						-,03	,04	-,07
	Age						,01	,00	<b>,41***</b>
	Anger						,00	,00	-,01
	Inhibitory C.						,00	,00	,07
	Soothability						,00	,00	-,13
	Perceptual S.						,00	,00	-,05
<b>Step 3</b>		<b>,44</b>	<b>,19</b>	<b>,02</b>	<b>2,25</b>	<b>,69</b>	-,01	,17	,00
	Gender						-,04	,04	-,11
	Age						,01	,00	<b>,45***</b>
	Anger						,00	,00	-,02
	Inhibitory C.						,00	,00	,08
	Soothability						,00	,00	-,14
	Perceptual S.						,00	,00	-,05
	Institution						,04	,06	,10
	Care Village						,00	,06	,00
	Child Home						,07	,06	,16
<b>Step 4</b>		<b>,49</b>	<b>,24</b>	<b>,05</b>	<b>2,13</b>	<b>1,62</b>	-,02	,17	,00
	Gender						-,04	,04	-,12
	Age						,01	,00	<b>,43***</b>
	Anger						,01	,01	,47
	Inhibitory C.						,00	,00	,10
	Soothability						,00	,00	-,17
	Perceptual S.						,00	,00	-,03
	Institution						,08	,06	,20
	Care Village						,03	,06	,08
	Child Home						,11	,06	<b>,26<sup>b</sup></b>
	Anger x Institut.						-,01	,01	-,26
	Anger x Child H						-,01	,01	-,28
	Anger x Care V.						-,02	,01	<b>-,37*</b>

\*p<.05, \*\*p<.01, \*\*\*p<.001, a marginally significant, b approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.



### 3.7.2. Results for Moderating Role of Perceptual Sensitivity Trait among all care types

Then, seven hierarchical regression analyses also were performed for moderating role of perceptual sensitivity with each outcome variables (overall emotion understanding, happy, sad, afraid, surprised, pride, and shame). For all of those analyses, age and gender were entered in **the first step** to see whether emotion understanding scores change according to the age or gender and in **the second step** temperamental traits were entered. Then, in **the third step** dummy coded care types were entered and low SES was taken as comparison group. In **the fourth step**, in order to see whether perceptual sensitivity domain of temperamental characteristics interacted with care type of children when explaining their emotion understanding abilities, the interaction variables were entered. According to these analyses, emotions of happiness, sadness, fear, surprise and shame when taken as dependent variable, the only significant effect was age in the first step, so they will be not reported further.

**Table 3.8** Summary of Regression Results for Moderator of Perceptual Sensitivity

IVs	EU	Happiness	Sadness	Fear	Surprise	Pride	Shame
Age	√ (+)	√ (+)	√ (+)	√ (+)	√ (+)	√ (+)	
Gender							
Anger/frustration							
Inhibitory Control						√ (-)	
Soothability							
Perceptual sensitivity							
Institution							
Care village							
Child home							
Percept*Institutions							
Percept*Childhome	√					√	
Percept*Care village							

√ relationship between iv and dv was significant, (+) iv positively predicted dv.

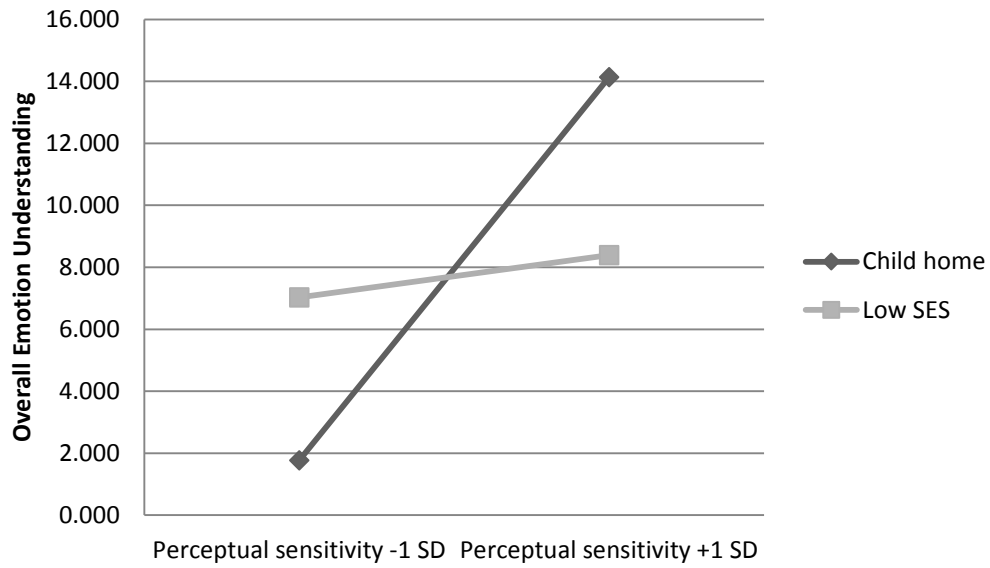
### **3.7.2.1. Perceptual Sensitivity Trait as a Moderator in Predicting Overall Emotion Understanding**

When perceptual sensitivity was entered as moderator the final step, but they did not make significant contribution to the explained variance,  $R^2 = .37$  (adjusted  $R^2 = .28$ ),  $\Delta R^2 = .05$ ,  $F_{inc}(3, 83) = 2.10$ ,  $p = .11$ . When all the variables were in the equation, effect of age ( $\beta = .49$ ,  $p < .001$ ) yielded significant results. Moreover, the interaction of perceptual sensitivity and being in child home ( $\beta = -.31$ ,  $p = .052$ ) was negatively predict understanding overall emotions. To examine this interaction, the simple slope analysis was run, and the results showed that the slopes for high perceptuan sensitivity ( $b = -6.51$ ,  $t = -2.018$ ,  $p < .05$ ) was significant, and for low perceptual sensitivity ( $b = 5.96$ ,  $t = 1.118$ ,  $p = .241$ ) was not significant (see Figure 3.3).

**Table 3.9.** Hierarchical Regression Analysis in Predicting the Overall Emotion Understanding: Perceptual Sensitivity as a Moderator

Perceptual Sensitivity									
	Predictors	R	R <sup>2</sup>	$\Delta R^2$	F	Finc	B	SE	B
<b>Step 1</b>		<b>,46</b>	<b>,21</b>	<b>,21</b>	<b>19,55</b>	<b>12,24</b>	5,06	6,73	,00
	Gender						,17	1,55	,01
	Age						,77	,12	<b>,54***</b>
<b>Step 2</b>		<b>,49</b>	<b>,24</b>	<b>,03</b>	<b>6,76</b>	<b>,81</b>	5,79	6,93	,00
	Gender						,51	1,58	,03
	Age						,74	,13	<b>,53***</b>
	Anger						,06	,12	,06
	Inhibitory C.						,05	,13	,04
	Soothability						,00	,14	,00
	Perceptual S.						,11	,12	,10
<b>Step 3</b>		<b>,51</b>	<b>,26</b>	<b>,03</b>	<b>4,59</b>	<b>1,02</b>	8,40	7,40	,00
	Gender						1,17	1,69	,07
	Age						,69	,14	<b>,49***</b>
	Anger						,06	,12	,06
	Inhibitory C.						,06	,14	,05
	Soothability						,01	,14	,01
	Perceptual S.						,11	,12	,10
	Institution						-2,72	2,61	-,14
	Care Village						-,49	2,52	-,03
	Child Home						-1,56	2,51	-,08
<b>Step 4</b>		<b>,54</b>	<b>,29</b>	<b>,02</b>	<b>4,09</b>	<b>,95</b>	7,83	7,56	,00
	Gender						,52	1,72	,03
	Age						,69	,14	<b>,49***</b>
	Anger						-,01	,12	-,01
	Inhibitory C.						,01	,14	,01
	Soothability						-,02	,14	-,02
	Perceptual S.						,45	,35	,39
	Institution						-1,13	2,90	-,06
	Care Village						1,18	2,81	,06
	Child Home						-,28	2,82	-,01
	Percept. x Institut.						-,27	,39	-,13
	Percept. x Child H						-,82	,41	<b>-,31<sup>a</sup></b>
	Percept. x Care V.						-,14	,39	-,08

\*p<.05, \*\*p<.01, \*\*\*p<.001, a marginally significant, b approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.



**Figure 3.6** Interaction effect between perceptual sensitivity and child homes in overall understanding of emotions

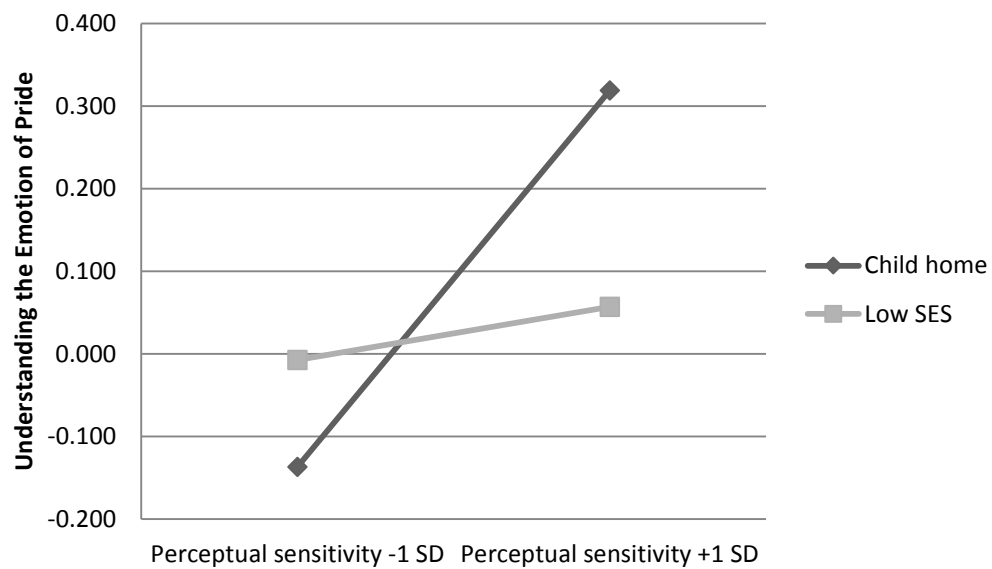
### 3.7.2.2. Perceptual Sensitivity Trait as a Moderator in Predicting Understanding Pride

When perceptual sensitivity was entered as moderator the final step, the results provided statistically significant results,  $R^2 = .28$  (adjusted  $R^2 = .17$ ),  $\Delta R^2 = .10$ ,  $F_{inc}(3, 83) = 3.73$ ,  $p < .05$ . When all the variables were in the equation, effect of age ( $\beta = .21$ ,  $p = .050$ ), inhibitory control ( $\beta = -.24$ ,  $p = .062$ ), and perceptual sensitivity ( $\beta = .64$ ,  $p = .054$ ) were approaching significance. Moreover, the interaction of perceptual sensitivity and being in child home ( $\beta = -.48$ ,  $p < .01$ ) was negatively predict understanding emotion of pride. To examine this interaction, the simple slope analysis was run, and the results showed that the slopes for high perceptual sensitivity ( $b = -.297$ ,  $t = -4.194$ ,  $p < .001$ ), and for low perceptual sensitivity ( $b = .147$ ,  $t = 2.073$ ,  $p < .05$ ) were significant (see Figure 3.4).

**Table 3.10** Hierarchical Regression Analysis in Predicting the Emotion of Pride: Perceptual Sensitivity as a Moderator

		Perceptual Sensitivity							
	Predictors	R	R <sup>2</sup>	$\Delta R^2$	F	Finc	B	SE	B
<b>Step 1</b>		<b>,29</b>	<b>,09</b>	<b>,09</b>	<b>4,41</b>	<b>4,41</b>	-,05	,18	,00
	Gender						,04	,04	,10
	Age						,01	,00	<b>,28**</b>
<b>Step 2</b>		<b>,34</b>	<b>,11</b>	<b>,03</b>	<b>1,90</b>	<b>,68</b>	-,03	,18	,00
	Gender						,04	,04	,11
	Age						,01	,00	<b>,27*</b>
	Anger						,00	,00	,03
	Inhibitory C.						,00	,00	-,16
	Soothability						,00	,00	,03
	Perceptual S.						,00	,00	,10
<b>Step 3</b>		<b>,42</b>	<b>,18</b>	<b>,07</b>	<b>2,08</b>	<b>2,28</b>	,10	,19	,00
	Gender						,06	,04	,15
	Age						,01	,00	<b>,20<sup>a</sup></b>
	Anger						,00	,00	,05
	Inhibitory C.						-,01	,00	-,18
	Soothability						,00	,00	,04
	Perceptual S.						,00	,00	,11
	Institution						-,06	,07	-,13
	Care Village						,00	,06	,00
	Child Home						-,13	,06	<b>-,29*</b>
<b>Step 4</b>		<b>,53</b>	<b>,28</b>	<b>,10</b>	<b>2,64</b>	<b>3,73</b>	,06	,19	,00
	Gender						,04	,04	,11
	Age						,01	,00	<b>,21<sup>a</sup></b>
	Anger						,00	,00	-,06
	Inhibitory C.						-,01	,00	<b>-,24<sup>b</sup></b>
	Soothability						,00	,00	-,02
	Perceptual S.						,02	,01	<b>,64*</b>
	Institution						,01	,07	,02
	Care Village						,07	,07	,15
	Child Home						-,08	,07	-,17
	Percept. x Institut.						-,01	,01	-,26
	Percept. x Child H						-,03	,01	<b>-,48**</b>
	Percept. x Care V.						-,01	,01	-,18

\*p<.05, \*\*p<.01, \*\*\*p<.001, a marginally significant, b approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.



**Figure 3.7** Interaction effect between perceptual sensitivity and child homes in understanding of pride emotion

### 3.7.3. Results for Moderating Role of Anger/Frustration Trait among Children under Social Services

Seven hierarchical regression analyses were performed for moderating role of anger/frustration with each outcome variables (overall emotion understanding, happy, sad, afraid, surprised, pride, and shame). For all of those analyses, age and gender were entered in **the first step** to see whether emotion understanding scores change according to the age, gender, total risk and total time and in **the second step** temperamental traits were entered. Then, in **the third step** dummy coded care types were entered and institution was taken as comparison group. In **the fourth step**, in order to see whether anger/frustration domain of temperamental characteristics interacted with care type of children when explaining their emotion understanding abilities, the interaction variables were entered. According to these analyses, emotions of sadness, fear, surprise and shame when taken as dependent variable, the only significant effect was age in the first step, so they will be not reported further.

**Table 3.11** Summary of Regression Results for Anger/Frustration Moderator

	EU	Happiness	Sadness	Fear	Surprise	Pride	Shame
Age	√(+)	√(+)	√(+)	√(+)	√(+)		
Gender							
Total Time		√(+)			√(+)		
Total Risk						√(-)	
Anger/frustration							
Inhibitory Control						√(-)	
Soothability							
Perceptual sensitivity							
Care village		√(+)					
Child home		√(+)					
Anger*Childhome							
Anger*Care village							

√ relationship between iv and dv was significant, (+) iv positively predicted dv.

### 3.7.3.1. Anger/Frustration Trait as a Moderator in Predicting Overall Emotion Understanding

In **the first step**, age and gender were entered and it provided statistically significant results,  $R^2 = .36$  (adjusted  $R^2 = .32$ ),  $F(4, 67) = 9.30$ ,  $p < .001$ . The effect of age ( $\beta = .56$ ,  $p < .001$ ) positively predicted emotion understanding ability. In **the second step**, four temperamental characteristics were added and the result indicated that those variables did not account for any additional variance in predicting overall emotion understanding,  $R^2 = .37$  (adjusted  $R^2 = .29$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(4, 63) = .24$ ,  $p = .92$ . For **the third step**, care types were added and it indicated non-significant results, which means this model explained no additional variance in the equation,  $R^2 = .39$  (adjusted  $R^2 = .29$ ),  $\Delta R^2 = .02$ ,  $F_{inc}(2, 61) = .39$ ,  $p = .39$ . In **the fourth step**, interaction variables were entered and the results provided non-significant results,  $R^2 = .40$  (adjusted  $R^2 = .27$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(2, 59) = .27$ ,  $p = .76$ . When all the variables were in the equation, only effect of age ( $\beta = .54$ ,  $p < .001$ ) yielded significant results, but the other variables did not make significant contribution.

### 3.7.3.2. Anger/Frustration Trait as a Moderator in Predicting Understanding Happiness

In **the first step**, age and gender were entered and it provided statistically significant results,  $R^2 = .27$  (adjusted  $R^2 = .22$ ),  $F(4, 67) = 6.10$ ,  $p < .001$ . The effect of age ( $\beta = .43$ ,  $p < .001$ ) positively predicted understanding happiness. In **the second step**, four temperamental characteristics were added and the result indicated that those variables did not account for any additional variance in predicting understanding happiness,  $R^2 = .28$  (adjusted  $R^2 = .19$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(4, 63) = .38$ ,  $p = .82$ . For **the third step**, care types were added and it indicated approaching significant results, which means this model explained some additional variance in the equation,  $R^2 = .35$  (adjusted  $R^2 = .24$ ),  $\Delta R^2 = .06$ ,  $F_{inc}(2, 61) = .39$ ,  $p = .06$ . In **the fourth step**, interaction variables were entered and the results provided non-significant results,  $R^2 = .35$  (adjusted  $R^2 = .22$ ),  $\Delta R^2 = .00$ ,  $F_{inc}(2, 59) = .10$ ,  $p = .91$ . When all the variables were in the equation, effect of age ( $\beta = .38$ ,  $p < .01$ ), and child home ( $\beta = .29$ ,  $p < .05$ ) yielded significant results. In addition, care village ( $\beta = .23$ ,  $p = .093$ ) was approaching significance.



**Table 3.12.** Hierarchical Regression Analysis in Predicting the Emotion of Happiness: Anger/Frustration as a Moderator

		Anger/Frustration							
	Predictors	R	R <sup>2</sup>	ΔR <sup>2</sup>	F	Finc	B	SE	B
<b>Step 1</b>		<b>,52</b>	<b>,27</b>	<b>,27</b>	<b>6,08</b>	<b>6,08</b>	-,01	,21	,00
	Gender						-,01	,05	-,02
	Age						,02	,00	<b>,43***</b>
	TotalRisk						-,02	,02	-,08
	TotalTime						,00	,00	<b>,22*</b>
<b>Step 2</b>		<b>,53</b>	<b>,28</b>	<b>,02</b>	<b>3,12</b>	<b>,38</b>	,03	,22	,00
	Gender						-,01	,05	-,02
	Age						,02	,00	<b>,42***</b>
	TotalRisk						-,02	,03	-,09
	TotalTime						,00	,00	<b>,23*</b>
	Anger						-,00	,00	-,02
	Inhibitory C, Soothability						,00	,00	-,01
	Perceptual S.						,00	,01	-,01
<b>Step 3</b>		<b>,59</b>	<b>,35</b>	<b>,06</b>	<b>3,24</b>	<b>2,94</b>	,00	,00	,14
							-,02	,22	,00
	Gender						,01	,05	,02
	Age						,01	,00	<b>,39**</b>
	TotalRisk						-,03	,03	-,14
	TotalTime						,00	,00	<b>,25*</b>
	Anger						,00	,00	-,03
	Inhibitory C.						,00	,00	,01
	Soothability						,00	,01	,00
	Perceptual S.						,01	,00	,15
	Care Village						,11	,06	<b>,23<sup>b</sup></b>
	Child Home						,14	,06	<b>,29*</b>
<b>Step 4</b>		<b>,59</b>	<b>,35</b>	<b>,00</b>	<b>2,63</b>	<b>,09</b>	-,02	,23	,00
	Gender						,02	,06	,04
	Age						,01	,00	<b>,38**</b>
	TotalRisk						-,03	,03	-,13
	TotalTime						,00	,00	<b>,26*</b>
	Anger						,00	,01	,01
	Inhibitory C.						,00	,00	,01
	Soothability						,00	,01	,01
	Perceptual S.						,00	,00	,15
	Care V.						,11	,06	<b>,23<sup>b</sup></b>
	Child H.						,14	,06	<b>,29*</b>
	Anger x Child						-,00	,00	-,06
	Anger x Care						,00	,01	,01

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>a</sup>marginally significant. <sup>b</sup>approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.

### 3.7.3.3. Anger/Frustration Trait as a Moderator in Predicting Understanding Pride

In **the first step**, age and gender were entered and it provided statistically significant results,  $R^2 = .14$  (adjusted  $R^2 = .10$ ),  $F(4, 67) = 2.64$ ,  $p < .001$ . The effect of age ( $\beta = .24$ ,  $p < .05$ ) positively predicted understanding pride. In addition, the effect of total risk ( $\beta = -.19$ ,  $p = .099$ ) was approaching significance. In **the second step**, four temperamental characteristics were added and the result indicated that those variables did not account for any additional variance in predicting understanding surprise,  $R^2 = .21$  (adjusted  $R^2 = .11$ ),  $\Delta R^2 = .07$ ,  $F_{inc}(4, 63) = 1.41$ ,  $p = .24$ . For **the third step**, care types were added and it indicated non-significant results, which means this model explained no additional variance in the equation,  $R^2 = .26$  (adjusted  $R^2 = .14$ ),  $\Delta R^2 = .05$ ,  $F_{inc}(2, 61) = 2.07$ ,  $p = .14$ . In **the fourth step**, interaction variables were entered and the results provided non-significant results,  $R^2 = .27$  (adjusted  $R^2 = .12$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(2, 59) = .73$ ,  $p = .23$ . When all the variables were in the equation, total risk ( $\beta = -.30$ ,  $p < .05$ ) yielded significant results. In addition, inhibitory control ( $\beta = -.26$ ,  $p = .091$ ) was approaching significance.

**Table 3.13.** Hierarchical Regression Analysis in Predicting the Emotion of Pride: Anger/Frustration as a Moderator

		Anger/Frustration							
	Predictors	R	R <sup>2</sup>	ΔR <sup>2</sup>	F	Finc	B	SE	B
<b>Step 1</b>		<b>,37</b>	<b>,14</b>	<b>,14</b>	<b>2,64</b>	<b>2,64</b>	,03	,21	,00
	Gender						,06	,05	,15
	Age						,01	,00	<b>,24*</b>
	TotalRisk						-,04	,03	<b>-,19<sup>b</sup></b>
	TotalTime						,00	,00	,05
<b>Step 2</b>		<b>,45</b>	<b>,21</b>	<b>,07</b>	<b>2,06</b>	<b>1,41</b>	,07	,22	,00
	Gender						,06	,05	,13
	Age						,01	,00	<b>,26*</b>
	TotalRisk						-,06	,03	<b>-,29*</b>
	TotalTime						,00	,00	,03
	Anger						,00	,00	,05
	Inhibitory C.						-,01	,00	-,24
	Soothability						,00	,01	-,06
	Perceptual S.						,00	,00	,05
<b>Step 3</b>		<b>,51</b>	<b>,26</b>	<b>,05</b>	<b>2,12</b>	<b>2,07</b>	,14	,22	,00
	Gender						,08	,05	,18
	Age						,01	,00	,19
	TotalRisk						-,06	,03	<b>-,29*</b>
	TotalTime						,00	,00	,03
	Anger						,00	,00	,07
	Inhibitory C.						-,01	,00	<b>-,26<sup>b</sup></b>
	Soothability						,00	,01	-,02
	Perceptual S.						,00	,00	,08
	Care Village						,08	,06	,19
	Child Home						-,04	,06	-,08
<b>Step 4</b>		<b>,51</b>	<b>,27</b>	<b>,01</b>	<b>1,78</b>	<b>,32</b>	,16	,22	,00
	Gender						,06	,06	,15
	Age						,01	,00	,20
	TotalRisk						-,07	,03	<b>-,30*</b>
	TotalTime						,00	,00	,01
	Anger						,00	,01	-,04
	Inhibitory C.						-,01	,00	<b>-,26<sup>b</sup></b>
	Soothability						,00	,01	-,02
	Perceptual S.						,00	,00	,09
	Care V.						,09	,06	,20
	Child H.						-,03	,06	-,07
	Anger x Child						,01	,01	,14
	Anger x Care						,00	,01	,07

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>a</sup>marginally significant. <sup>b</sup>approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.

#### **3.7.4. Results for Moderating Role of Perceptual Sensitivity Trait among Children under Social Services**

Seven hierarchical regression analyses also were performed for moderating role of perceptual sensitivity with each outcome variables (overall emotion understanding, happy, sad, afraid, surprised, pride, and shame). For all of those analyses, age, gender total risk and total time were entered in **the first step** to see whether emotion understanding scores change according to the age or gender and in **the second step** temperamental traits were entered. Then, in **the third step** dummy coded care types were entered and low SES was taken as comparison group. In **the fourth step**, in order to see whether perceptual sensitivity domain of temperamental characteristics interacted with care type of children when explaining their emotion understanding abilities, the interaction variables were entered. According to these analyses, emotions of sadness and fear when taken as dependent variable, the only significant effect was age in the first step, so they will be not reported further.

**Table 3.14** Summary of Regression Results for Moderator of Perceptual Sensitivity

	EU	Happiness	Sadness	Fear	Surprise	Pride	Shame
Age	√(+)	√(+)	√(+)	√(+)	√(+)		
Gender							
Total time		√(+)					
Total Risk						√(-)	
Anger/frustration							
Inhibitory Control						√(-)	
Soothability							
Perceptual sensitivity							√(+)
Care village		√(+)					
Child home		√(+)					
Percept*Childhome							√
Percept*Care village					√	√	√

√ relationship between iv and dv was significant, (+) iv positively predicted dv.

#### 3.7.4.1. Perceptual Sensitivity Trait as a Moderator in Predicting Overall Emotion Understanding

When perceptual sensitivity was entered as moderator the final step, the results provided non-significant results,  $R^2 = .41$  (adjusted  $R^2 = .29$ ),  $\Delta R^2 = .03$ ,  $F_{inc}(2, 59) = 1.26$ ,  $p = .29$ . When all the variables were in the equation, effect of age ( $\beta = .52$ ,  $p < .001$ ) yielded significant results.

#### 3.7.4.2. Perceptual Sensitivity Trait as a Moderator in Predicting Understanding Happiness

When perceptual sensitivity was entered as moderator the final step, the results provided non-significant results,  $R^2 = .36$  (adjusted  $R^2 = .23$ ),  $\Delta R^2 = .01$ ,  $F_{inc}(2, 59) = .57$ ,  $p = .57$ . When all the variables were in the equation, effect of age ( $\beta = .38$ ,  $p < .01$ ), total time spent in care ( $\beta = .24$ ,  $p < .05$ ), and child home ( $\beta = .27$ ,  $p < .05$ ) yielded significant results. In addition, care village ( $\beta = .23$ ,  $p = .091$ ) was approaching significance.

**Table 3.15** Hierarchical Regression Analysis in Predicting the Emotion of Happiness: Perceptual Sensitivity as a Moderator

Perceptual Sensitivity									
	Predictors	R	R <sup>2</sup>	ΔR <sup>2</sup>	F	Finc	B	SE	B
<b>Step 1</b>		<b>,52</b>	<b>,27</b>	<b>,27</b>	<b>6,08</b>	<b>6,08</b>	-,01	,21	,00
	Gender						-,01	,05	-,02
	Age						,02	,00	<b>,43***</b>
	TotalRisk						-,02	,03	-,08
	TotalTime						,00	,00	<b>,22*</b>
<b>Step 2</b>		<b>,53</b>	<b>,28</b>	<b>,02</b>	<b>3,12</b>	<b>,38</b>	,03	,22	,00
	Gender						-,01	,05	-,02
	Age						,02	,00	<b>,42***</b>
	TotalRisk						-,02	,03	-,09
	TotalTime						,00	,00	<b>,23*</b>
	Anger						,00	,00	-,02
	Inhibitory C,						,00	,00	-,01
	Soothability						,00	,01	-,01
	Perceptual S.						,00	,00	,14
<b>Step 3</b>		<b>,59</b>	<b>,35</b>	<b>,06</b>	<b>3,24</b>	<b>2,94</b>	-,02	,22	,00
	Gender						,01	,05	,02
	Age						,01	,00	<b>,39**</b>
	TotalRisk						-,03	,03	-,14
	TotalTime						,00	,00	<b>,26*</b>
	Anger						,00	,00	-,03
	Inhibitory C.						,00	,00	,01
	Soothability						,00	,01	,00
	Perceptual S.						,01	,00	,15
	Care Village						,11	,06	<b>,23<sup>b</sup></b>
	Child Home						,14	,06	<b>,29*</b>
<b>Step 4</b>		<b>,60</b>	<b>,36</b>	<b>,01</b>	<b>2,75</b>	<b>,57</b>	,02	,23	,00
	Gender						,00	,05	-,01
	Age						,01	,00	<b>,38**</b>
	TotalRisk						-,03	,03	-,14
	TotalTime						,00	,00	<b>,24*</b>
	Anger						,00	,00	-,05
	Inhibitory C.						,00	,00	-,03
	Soothability						,00	,01	,02
	Perceptual S.						,01	,01	,20
	Care V.						,11	,06	<b>,23<sup>b</sup></b>
	Child H.						,13	,06	<b>,27*</b>
	Percep. x Child						-,01	,01	-,12
	Percep. x Care						,00	,01	,05

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>a</sup>marginally significant. <sup>b</sup>approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.

### **3.7.4.3. Perceptual Sensitivity Trait as a Moderator in Predicting Understanding Surprise**

When perceptual sensitivity was entered as moderator the final step, the results provided non-significant results,  $R^2 = .24$  (adjusted  $R^2 = .08$ ),  $\Delta R^2 = .04$ ,  $F_{inc}(2, 59) = 1.58$ ,  $p = .53$ . When all the variables were in the equation, effect of age ( $\beta = .43$ ,  $p < .01$ ) yielded significant result, and perceptual sensitivity ( $\beta = -.38$ ,  $p = .063$ ) was approaching significance. Moreover, the interaction of perceptual sensitivity and being in care village ( $\beta = .30$ ,  $p = .081$ ) predict understanding emotion of surprise.

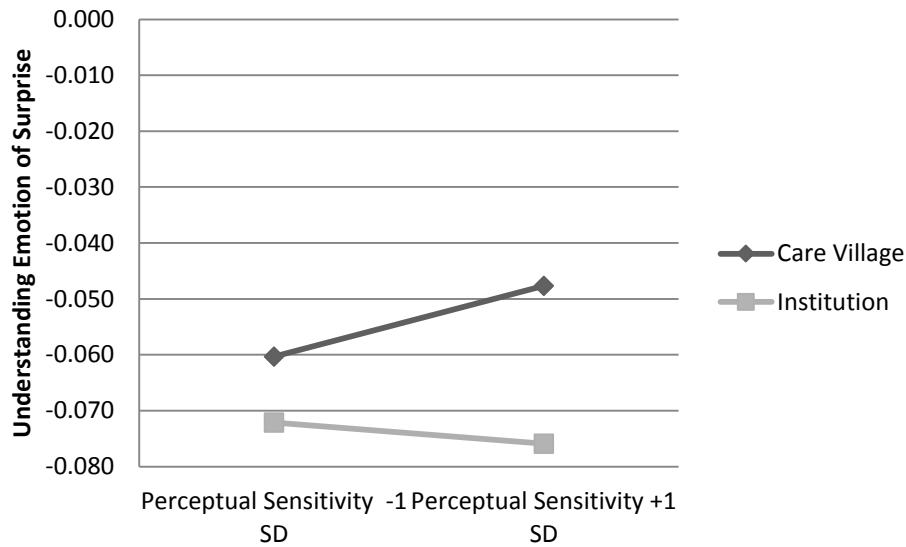
To examine this interaction, the simple slope analysis was run, and the results showed that the slopes for low perceptual sensitivity ( $b = -.012$ ,  $t = -.214$ ,  $p = .831$ ), and for high perceptual sensitivity ( $b = -.028$ ,  $t = -0.514$ ,  $p = .609$ ) were not significant (see Figure 3.5).

**Table 3.16** Hierarchical Regression Analysis in Predicting the Emotion of Surprise: Perceptual Sensitivity as a Moderator

		Perceptual Sensitivity							
	Predictors	R	R <sup>2</sup>	ΔR <sup>2</sup>	F	Finc	B	SE	β
<b>Step 1</b>		<b>,40</b>	<b>,16</b>	<b>,16</b>	<b>3,26</b>	<b>3,26</b>	,08	,18	,00
	Gender						-,01	,04	-,04
	Age						,01	,00	<b>,35**</b>
	TotalRisk						,01	,02	,07
	TotalTime						,00	,00	,17
<b>Step 2</b>		<b>,43</b>	<b>,18</b>	<b>,02</b>	<b>1,77</b>	<b>,40</b>	,03	,20	,00
	Gender						-,01	,05	-,03
	Age						,01	,00	<b>,36**</b>
	TotalRisk						,02	,02	,12
	TotalTime						,00	,00	,17
	Anger						,00	,00	-,02
	Inhibitory C.						,00	,00	,13
	Soothability						,00	,00	,01
<b>Step 3</b>	Perceptual S.						,00	,00	-,14
		<b>,44</b>	<b>,20</b>	<b>,01</b>	<b>1,50</b>	<b>,52</b>	-,01	,20	,00
	Gender						-,02	,05	-,04
	Age						,01	,00	<b>,39**</b>
	TotalRisk						,02	,03	,11
	TotalTime						,00	,00	,17
	Anger						,00	,00	-,03
	Inhibitory C.						,00	,00	,14
	Soothability						,00	,00	-,01
	Perceptual S.						,00	,00	-,16
<b>Step 4</b>	Care Village						-,02	,06	-,05
	Child Home						,04	,05	,09
		<b>,49</b>	<b>,24</b>	<b>,04</b>	<b>1,54</b>	<b>1,58</b>	-,05	,21	,00
	Gender						-,03	,05	-,07
	Age						,01	,00	<b>,43**</b>
	TotalRisk						,02	,02	,13
	TotalTime						,00	,00	,19
	Anger						,00	,00	-,04
	Inhibitory C.						,00	,00	,08
	Soothability						,00	,00	,02
	Perceptual S.						-,01	,01	<b>-,38<sup>a</sup></b>
	Care V.						-,02	,06	-,05
	Child H.						,03	,05	,08
	Percep. x Child						,01	,01	,13
	Percep. x Care						,01	,01	<b>,30<sup>b</sup></b>

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>a</sup>marginally significant. <sup>b</sup>approaching significance. Note: Standard Error (SE) scores and β values in the final steps were reported.





**Figure 3.8** Interaction effect between perceptual sensitivity and care village in understanding surprise

#### 3.7.4.4. Perceptual Sensitivity Trait as a Moderator in Predicting Understanding Pride

When perceptual sensitivity was entered as moderator the final step, the results provided non-significant results,  $R^2 = .31$  (adjusted  $R^2 = .17$ ),  $\Delta R^2 = .05$ ,  $F_{inc}(2, 59) = 2.24$ ,  $p = .12$ . When all the variables were in the equation, total risk ( $\beta = -.28$ ,  $p < .05$ ), and inhibitory control ( $\beta = -.34$ ,  $p < .05$ ) yielded significant result. Moreover, the interaction of perceptual sensitivity and being in child home ( $\beta = -.27$ ,  $p = .072$ ) predict understanding emotion of pride. To examine this interaction, the simple slope analysis was run, and the results showed that the slopes for low perceptual sensitivity ( $b = 0.060$ ,  $t = -1.073$ ,  $p = .287$ ), and for high perceptual sensitivity ( $b = -0.40$ ,  $t = -.742$ ,  $p = .446$ ) were not significant.

**Table 3.17** Hierarchical Regression Analysis in Predicting the Emotion of Pride: Perceptual Sensitivity as a Moderator

		Perceptual Sensitivity							
	Predictors	R	R <sup>2</sup>	ΔR <sup>2</sup>	F	Finc	B	SE	B
<b>Step 1</b>		<b>,37</b>	<b>,14</b>	<b>,14</b>	<b>2,64</b>	<b>2,64</b>	,03	,21	,00
	Gender						,06	,05	,15
	Age						,01	,00	<b>,24*</b>
	TotalRisk						-,04	,03	<b>-,19<sup>b</sup></b>
	TotalTime						,00	,00	,05
<b>Step 2</b>		<b>,45</b>	<b>,21</b>	<b>,07</b>	<b>2,06</b>	<b>1,41</b>	,07	,22	,00
	Gender						,06	,05	,13
	Age						,01	,00	<b>,26*</b>
	TotalRisk						-,06	,03	<b>-,29*</b>
	TotalTime						,00	,00	,03
	Anger						,00	,00	,05
	Inhibitory C.						-,01	,00	-,24
	Soothability						,00	,01	-,06
	Perceptual S.						,00	,00	,05
<b>Step 3</b>		<b>,51</b>	<b>,26</b>	<b>,05</b>	<b>2,12</b>	<b>2,07</b>	,14	,22	,00
	Gender						,08	,05	,18
	Age						,01	,00	,19
	TotalRisk						-,06	,03	<b>-,29*</b>
	TotalTime						,00	,00	,03
	Anger						,00	,00	,07
	Inhibitory C.						-,01	,00	<b>-,26<sup>b</sup></b>
	Soothability						,00	,01	-,02
	Perceptual S.						,00	,00	,08
	Care Village						,08	,06	,19
	Child Home						-,04	,06	-,08
<b>Step 4</b>		<b>,56</b>	<b>,31</b>	<b>,05</b>	<b>2,21</b>	<b>2,24</b>	,22	,22	,00
	Gender						,06	,05	,13
	Age						,01	,00	,17
	TotalRisk						-,06	,03	<b>-,29*</b>
	TotalTime						,00	,00	-,01
	Anger						,00	,00	,03
	Inhibitory C.						-,01	,00	<b>-,34*</b>
	Soothability						,00	,01	,02
	Perceptual S.						,01	,01	,23
	Care V.						,08	,06	,19
	Child H.						-,05	,06	-,12
	Percep. x Child						-,02	,01	<b>-,27<sup>b</sup></b>
	Percep. x Care						,00	,01	,04

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>a</sup>marginally significant. <sup>b</sup>approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.

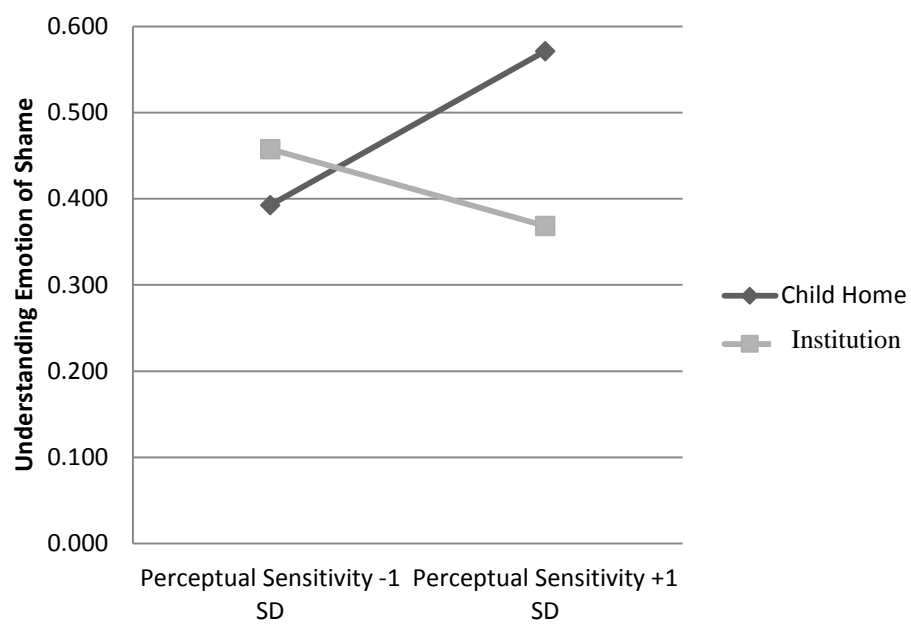
#### **3.7.4.5. Perceptual Sensitivity Trait as a Moderator in Predicting Understanding Shame**

When perceptual sensitivity was entered as moderator the final step, the results provided statistically significant results,  $R^2 = .14$  (adjusted  $R^2 = -.31$ ),  $\Delta R^2 = .09$ ,  $F_{inc}(2, 59) = 3.20$ ,  $p < .05$ . When all the variables were in the equation, perceptual sensitivity ( $\beta = .50$ ,  $p < .05$ ) yielded significant result. Moreover, the interaction of perceptual sensitivity and being in child home ( $\beta = -.37$ ,  $p < .05$ ); and the interaction of perceptual sensitivity and being in care village ( $\beta = -.35$ ,  $p = .055$ ) predict understanding emotion of shame. To examine the interaction between perceptual sensitivity and being in care village, the simple slope analysis was run, and the results showed that the slopes for low perceptual sensitivity ( $b = 0.097$ ,  $t = 1.181$ ,  $p = .242$ ), and for high perceptual sensitivity ( $b = -0.111$ ,  $t = -1.303$ ,  $p = .197$ ) were not significant. To examine the interaction between perceptual sensitivity and being in child home, another simple slope analysis was run, and the results showed that the slopes for low perceptual sensitivity ( $b = 0.065$ ,  $t = 0.838$ ,  $p = .405$ ) was not significant, and for high perceptual sensitivity ( $b = -0.203$ ,  $t = -2.397$ ,  $p < .05$ ) was significant (see Figure 3.6).

**Table 3.18** Hierarchical Regression Analysis in Predicting the Emotion of Shame: Perceptual Sensitivity as a Moderator

		Perceptual Sensitivity							
	Predictors	R	R <sup>2</sup>	ΔR <sup>2</sup>	F	Finc	B	SE	B
<b>Step 1</b>		<b>,11</b>	<b>,01</b>	<b>,01</b>	<b>,21</b>	<b>,21</b>	,30	,20	,00
	Gender						,03	,05	,08
	Age						,00	,00	,02
	TotalRisk						,00	,02	-,02
	TotalTime						,00	,00	,06
<b>Step 2</b>		<b>,16</b>	<b>,03</b>	<b>,01</b>	<b>,21</b>	<b>,22</b>	,32	,21	,00
	Gender						,03	,05	,07
	Age						,00	,00	,02
	TotalRisk						-,01	,03	-,04
	TotalTime						,00	,00	,05
	Anger						,00	,00	,03
	Inhibitory C.						,00	,00	,03
	Soothability						,00	,01	-,06
	Perceptual S.						,00	,00	,09
<b>Step 3</b>		<b>,22</b>	<b>,05</b>	<b>,02</b>	<b>,32</b>	<b>,76</b>	,37	,22	,00
	Gender						,03	,05	,07
	Age						,00	,00	,00
	TotalRisk						,00	,03	-,02
	TotalTime						,00	,00	,04
	Anger						,00	,00	,05
	Inhibitory C.						,00	,00	,01
	Soothability						,00	,01	-,05
	Perceptual S.						,00	,00	,09
	Care Village						-,01	,06	-,02
	Child Home						-,06	,06	-,17
<b>Step 4</b>		<b>,38</b>	<b>,14</b>	<b>,09</b>	<b>,82</b>	<b>3,20</b>	,48	,22	,00
	Gender						,02	,05	,06
	Age						,00	,00	-,07
	TotalRisk						-,01	,03	-,03
	TotalTime						,00	,00	-,01
	Anger						,00	,00	,02
	Inhibitory C.						,00	,00	,02
	Soothability						,00	,01	-,07
	Perceptual S.						,01	,01	<b>,50*</b>
	Care V.						-,01	,06	-,02
	Child H.						-,07	,06	-,18
	Percep. x Child						-,02	,01	<b>-,37*</b>
	Percep. x Care						-,01	,01	<b>-,35<sup>a</sup></b>

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>a</sup>marginally significant. <sup>b</sup>approaching significance. Note: Standard Error (SE) scores and  $\beta$  values in the final steps were reported.



**Figure 3.9** Interaction effect between perceptual sensitivity and child homes in understanding shame

## **CHAPTER 4**

### **DISCUSSION**

The current study was carried out to explore the potential care type differences in the development of emotion understanding abilities of preschool children. In general, emotion understanding ability emerges in relation with others, because it is a form of perspective taking with respect to other's emotional expressions or internal feelings of other individuals according to the circumstances (Kramer, 2014). Preschool years are critical for children to develop this ability through the interactions with parents (Denham, Zoller, & Couchoud, 1994). Specifically, children whose mothers explaining and discussing about feelings more in early years showed advances in understanding emotions in later period of their lives (Laible & Thompson, 1998). Therefore, it can be said that as like in the Bandura's social learning theory (1977), children learn to identify and label emotions by observing how other's express and react to emotional states. Accordingly, family experiences provide a rich environment for this observation. Interaction between parents and children is very important for the development of children's emotion understanding. However, not all children are living in family circle, but there are millions of children living under the care of governmental protection. Thus, the present study compared preschool children who were living under different care types of social services and living with families in low SES conditions in Turkey. Family deprivation and parental neglect were found to be extremely risky for developing emotion recognition ability in children (Pollak, Cicchetti, Hornung, & Reed, 2000). Researchers compared children in institutions with children with biological families have found a discrepancy between two groups of children in their recognition of emotions (Cheyne & Jahoda, 1971; Terwogt, Schene, & Koops, 1990). Investigations on adopted children also indicated that impairments in emotion understanding ability due to early experiences of children continue throughout the adoption period (Vorría et al., 2006). Foster care assumed as a better option than institutional care found to be negatively effecting children's

emotion understanding ability due to the fact of number of transitions in this care type (Pears & Fisher, 2005). Currently, in Turkey, the government presents several care types for children under the social services. These different care types were needed to be evaluated to determine best possible care option for emotion understanding ability because this ability positively predicts children's later social understanding and behaviors. Thus, children aged from 3 to 5 were recruited from institutions, care villages, child homes and low SES homes in order to make this comparison. In fact, it was planned to include a group of children also from foster care homes. However, a very small number of families responded to the calls for participation in the study. Therefore, foster care group was excluded from the scope of investigation.

Emotion recognition and emotion comprehension tasks were used to test emotion understanding abilities of children. In addition, children's temperamental characteristics were tested as moderators of the relationship between care types and emotion understanding abilities. It is because children's their own contribution to development of their abilities cannot be ignored. Individual differences play a crucial role in all areas of child development and the differences mostly moderate the effects of environment on child outcomes. That is to say, the environment does not affect every child in the same way (Belsky, 1997). When children's sensitivity is high, it is expected that both negative and positive environmental influences have more effect on child outcomes (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & Van IJzendoorn, 2011).

By the way, in conjunction with that previous knowledge the current study hypothesized that children in institutional care will perform worse than children who stayed with families even if low SES condition, and specific temperamental characteristics namely perceptual sensitivity and anger/frustration will moderate care difference effect on children's understanding of emotions.

In the fallowing parts, the results of the present study will be discussed in the light of the literature. After, contribution and limitations of the study will be presented. Future suggestions will be given in the end.

## **4.1. Findings of the Present Study**

### **4.1.1. Findings for Emotion Recognition**

First of all, emotion recognition task was prepared to test children's ability to recognize emotional expressions from the presented photographs. In the literature, findings suggest that children are good at recognizing emotions from the face. However, it is not the case for all emotions because body provides some other cues that cannot be presented in the face (Tuminello & Davidson, 2011). Therefore, in the present study, both face-only and whole body photographs were used to make an extensive measurement. The results indicated no difference between the scores of two conditions -face only versus body. Therefore, combined scoring was taken into consideration in comparing emotion recognition abilities of the children.

In line with the hypotheses, when children from institutions, care villages, child homes and low SES homes were compared in terms of their ability to recognize emotions from photographs, there was a significant difference. Specifically, children who stayed at care villages or with families in low SES conditions performed better in emotion recognition task than children who stayed at institutions. It has been long discussed that children's ability to recognize different emotions are shaped by early experience in growing up environment (Pollak, Cicchetti, Hornung, & Reed, 2000). This current finding about emotion recognition is also compatible with the earlier works (Pollak, Cicchetti, Hornung, & Reed, 2000; Cheyne & Jahoda, 1971; Terwogt, Schene, & Koops, 1990). This finding can be explained in relation with the presence of the same main care givers most of the time. Moreover, group sizes were different, so number of children per mother was excessive in intuitions, but not that much for mothers in other groups. For instance, there were nearly 9-10 children with mixed age groups to establish family like relations in care villages, but in each group, there were 10-15 children in institutions and they were around the same age with same needs. In low SES condition, all of the mothers were the housewives and they spent most of



the time with their children. Similarly, at care villages, usually two main caregiver mothers were found with children. Thus, those children may have more chance to receive one to one interaction much more than institutional care group and they are able to follow and learn meanings of emotional expressions from those of the main characters in their lives. The effect of one-to-one interaction with children had been found in the other developmental areas such as development of theory of mind and language development when the comparison groups were institutionalized and never institutionalized children (Yagmurlu, Berument, & Celimli, 2005; Berument, Sönmez, & Eyüpoğlu, 2012; Berument, 2013). This finding showed that this effect applies also to development of emotion understanding abilities of young children. However, there was no difference found in the group comparison about child homes although those homes have the similar structure. This was an unexpected finding which might be related to some other factors related to children's early deficits in development of some other ability such as attention, or other factors outside of the scope of this study.

#### **4.1.2. Findings for Emotion Comprehension**

On the other hand, the results about emotion comprehension abilities of children indicated no group differences. All groups had similar scores in a range that was not very high. This outcome can be explained by the fact that emotion comprehension is higher-order ability compared to emotion recognition. Because children become able to recognize emotions through facial expressions at first, then gain emotional vocabulary that supports the development of emotion comprehension ability since it requires some advancement in language (Weimer, Sallquist, & Bolnick, 2012).

Moreover, the stories were written to refer to emotions based on situations, desires and beliefs reflecting three levels of emotion understanding. Moreover, children become able to understand those emotions by the help of development of some other abilities. For instance, theory of mind was found to be significantly predicting children's understanding of emotional conversations (De Rosnay, Fink,

Begeer, Slaughter, & Peterson, 2013). Due to the fact that, in all care types provided by social services, mothers have to be care of at least five or six children alone. Thus, most of the time children do not have the opportunity to engage conversations. In addition, in low SES condition, mothers were observed as not engaging in many conversations especially mental or emotional state conversations with their children nor they did report any book reading to their children. However, it had been known that mother's comprehension levels positively predict children's comprehension abilities (Reese, 1995; Ornaghi & Grazzani, 2013). Here with, low scores on emotion comprehension task in children in all care types might be explained with those kinds of certain deficiencies in caregiving environment.

#### **4.1.3. Findings for Emotion Types in Emotion Recognition**

In the present study higher-order (pride, shame) or lower-order (happy, sad, afraid, surprised) emotions were studied to investigate the children's level of understanding. When children compared on their scores for different emotions, it was expected that children would perform better in identifying basic emotions namely happiness, sadness, fear and surprise; while they would show lower performance on identification of higher-order emotions namely, pride and shame. It is because as higher-order emotions include a kind of social comparison needs several other cognitive capacities (Oatley, Keltner, & Jenkins, 2006). In line with this, the main effect of emotions in recognition task indicated that all children showed lower scores on identifying higher order emotions which were namely pride and shame. This finding also suggested that children who participated in this study showed lower level ability to understand emotions. What is worth to mention, all the children were better at identifying fear emotion than all other emotions. The present findings about the basic emotions were compatible with the earlier works that children in care identify negative emotions more than positive ones (Cheyne & Jahoda, 1971). This effect might be due to excess of the negative and fearful emotional expressions in the environment. Moreover, group comparisons about distinct emotions showed that as in general comparison, group

differences were found again in between institutionalized group and low SES or care village groups. Children in institution were worse at identifying all emotions than children in care village and low SES homes. There is no emotion type and care type interaction was detected.

#### **4.1.4. Findings for Story Types in Emotion Comprehension**

In emotion comprehension, it was expected that a child comes to understand at first situation based emotions, secondly desire based emotions, and then belief based emotions. As they get old, children tend to account for internal states more than external factors (Stein & Levine, 1999). However, the main effect of stories revealed that all of the children were better at understanding desire-based emotions than situation-based emotions and belief-based emotions. This effect can be due to emotions presented in each level. In situation based level, there were all six emotions including higher order ones. On the other hand, desire based level emotions comprised only two basic emotions. Apart from that, all of the children showed worse performance on understanding belief-based emotions in line with the hypotheses. It is because children with age develop awareness about thoughts and emotions are linked together (Lagattuta, Wellman, & Flavell, 1997). There was a significant interaction effect also found in levels of emotion comprehension which were situation based, desire based and belief based emotions. Only children's in care villages performances found to be similar across these three levels. Children at institutions performed better at situation based rather than desire and belief based stories as expected because situation based stories were presented as the first level. However, children in low SES homes and child homes performed better at understanding desire based stories.

#### **4.1.5. Findings for Temperament Interaction**

In order to investigate the moderating role of temperament on the emotion understanding ability, two possible temperamental interactions with anger/frustration and perceptual sensitivity were analyzed because individual

differences play a crucial role in child development and these differences moderate the effects of environment on child outcomes. It was expected that children with high perceptual sensitivity would show more sensitization to emotions rather than children with high anger/frustration. There was not significant moderating relationship between temperamental characteristics of anger/frustration, but only approaching significance for perceptual sensitivity. This can be an explanation for individual characteristics are not much influential on development of emotion understanding ability of children. It is because emerging of this ability needs social referencing (Harris, 1989). Therefore, early child caregiving environment should get much more prominence to understand this particular developmental aspect of children. Even so, interaction effect between perceptual sensitivity and child homes in overall understanding of emotions and understanding pride revealed that high perceptual sensitivity compensated the effect of being in care, because compared to low SES, children in child home performed better in high perceptual sensitivity condition. Moreover, interaction effect between perceptual sensitivity and child homes in understanding shame revealed that children in child homes performed better in high perceptual sensitivity condition than children in institutions.

#### **4.2. Conclusion**

The aim of the study was to reveal the potential care type differences in the development of emotion understanding ability with a wide range of measurement. First of all, regarding the levels of emotion understanding findings suggested that for the 3- and 5-year-olds who took part in this study showed some similarities and differences in regard to their care condition. In general, there was a significant difference in their ability to understand emotions in lower level tasks (emotion recognition, understanding lower-level emotions and situation based emotions), but no difference thereafter (emotion comprehension, understanding higher-level emotions and belief based emotions). By considering this effect of early care giving environment on emotion understanding development, it can be concluded that children are negatively affected by out of family environment and risk factors

such as low socioeconomic conditions in the family environment. When group comparisons were considered it was found that as expected children who stayed at institution performed the worst in all emotion understanding task. When all care types were compared, children were in care villages and low SES homes were found to be better in their emotion understanding ability. Moreover, there is a moderating effect of perceptual sensitivity by child homes. Children in child homes performed better when they were high in their perceptual sensitivity in emotion understanding tasks. With all those findings, it can be concluded that care types highly effective on early emergence of emotion understanding abilities and temperamental characteristics of a child might not be enough to compensate the negative effect of early care environment all the time.

#### **4.3. Contributions of the Study to the Existing Literature and Strengths of the Study**

Distinct components of emotion understanding ability were investigated in this study. Moreover, the sample of the study was comparatively good at giving information about the nature of the emotion understanding ability. It is because development of this ability quite clear under the influence of social environment. Moreover, the present study is the first to investigate the effects of different care types the development of emotion understanding ability. There are a number of studies having found that human brain shaped within social world and contribution of the social world is fundamental for improvement in certain developmental capacities (Grossmann & Johnson, 2007). This capacities help children and all humans in social functioning and intracting with others. Understanding others' feelings and thoughts are principles of social interactions, but this social understanding develops with age. Distinct developmental aspects turn into social understanding (Weimer, Sallquist, & Bolnick, 2012). In this sense, emotion understanding can be seen as a precursor of social understanding. Therefore, investigating emotion understanding development in children in early years can be expected to reveal important outcomes about later social functioning. The sample for this study includes children in care to reveal some practical

outcomes on the issue. It is because children in care have most deficiencies in their social adaptation due to lack of adequate interaction with caregivers (Côté, Borge, Geoffroy, Rutter, & Tremblay, 2008) and also in Turkey, there are many children under the care of social services. Moreover, Ministry of Family and Social Policies have made recent arrangements about presenting different care types and in need for investigation on those new care types to make new arrangements. According to the present findings, although being under care of their own families affected children most positively in terms of emotion understanding ability, for the children under care of social services, care villages seemed as the best option. It was known that government had an effort on closing and transforming large institutions just like other developed countries, and these new research findings can also be an indicator for that transformation of institutions to the child home and care villages should be accelerated in order to protect children from negative influences of early care giving environment.

#### **4.4. Limitations of the Study**

The main limitation in the present study is that the comparison group of children who were living with families in low SES condition might be more vulnerable status and open to developmental risk factors. Therefore, differences in some dimensions and temperament interactions were not observed with this sample. Differential susceptibility hypothesis proposes that children vary in their susceptibility to rearing influences (Belsky, 1997). To make more accurate comparison, groups of children from middle and high SES should be included in research.

#### **4.5. Future Suggestions and Implications**

The sample in the further studies might be widen to families of children in other socioeconomic status consider and comparing those results to reveal a better understanding about the reasons of differences in emotion understanding abilities of children. Afterwards, based on the current findings children in care, out of

family context, showed more inaccuracy in emotion understanding. Thus, interventions or preventions can be designed on the children's emotion understanding issue for those children especially who exposed to institutional care. Because well-developed emotion understanding abilities enhance children's social understanding and social competence, in turn their quality of life.

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## APPENDICES

### APPENDIX A: Informed Consent



1956

ORTA DOĞU TEKNİK ÜNİVERSİTESİ  
MIDDLE EAST TECHNICAL UNIVERSITY  
06531 ANKARA-TURKEY

Psikoloji Bölümü  
Department of Psychology

Tel: 90 (312) 210 31 82  
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Sevgili Anne-Babalar,

Orta Doğu Teknik Üniversitesi Psikoloji Bölümü olarak 0-5 yaş arasındaki çocukların zihinsel, dil ve sosyal duygusal gelişimleri üzerinde yaşadıkları çevrenin etkilerini inceleyen bir araştırma projesi yürütmekteyiz. Bu proje çerçevesinde devlet tarafından korunma altına alınmış yuva, sevgi evleri ve çocuk evlerinde büyüyen çocuklarla kendi öz aileleri yanında büyüyen çocukların gelişimlerini karşılaştırmayı planlıyoruz.

Bu çalışma kapsamında çocuğunuzla bazı oyunlar oynayarak (oyuncak tavşanla doktorculuk oynamak, kuklaları konuşturmak, bilgisayarda şekilleri takip etmek, hikayedeki çocuğun nasıl hissettiğini tanımlamak) veya resimli kartlara bakarak onun dil, bilişsel ve duygusal gelişimini değerlendirmek istemekteyiz. Bu oyunların onların gelişimini üzerinde hiçbir olumsuz etkisi bulunmamakta, ve çocuklar bu oyunlardan keyif almaktadır.

Sizin de bazı anketleri doldurarak çocuğunuzun mizacı, gelişimi ve davranışları hakkında bilgi vermenize ihtiyaç duymaktayız. Katılımınız bizim için son derece değerli ve önemlidir. Bu çalışmaya destek vermeye karar verdiğiniz takdirde, size uygun olan bir zamanda ev ziyareti gerçekleştirecektir. Bu ziyaretler çocuklarla çalışma konusunda eğitilmiş ve deneyimli, ODTÜ Gelişim Psikolojisi lisans üstü veya Psikoloji Bölümü son sınıf lisans öğrencileri tarafından yapılacaktır.

Çocuğunuzun değerlendirmeleri ile sizin dolduracağınız anketlerdeki cevaplarınız kesinlikle gizli tutulacak ve bu cevaplar sadece bilimsel araştırma

amacıyla kullanılacaktır. Bu formu imzaladıktan sonra hem siz hem de çocuğunuz katılımcılıktan ayrılma hakkına sahipsiniz.

Bu çalışmaya katılarak sağlayacağınız bilgiler, ülkemizdeki korunma altında bulunan çocukların gelişimlerini anlamamıza çok önemli katkılarda bulunacaktır.

**Proje Yürütücüsü: Prof. Dr. Sibel Kazak Berument**

**Proje Asistanı:**

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**Proje web sitesi: www.cdlab.psy.metu.edu.tr**

Orta Doğu Teknik Üniversitesi Psikoloji Bölümü öğretim Üyelerinden Prof. Dr. Sibel Kazak Berument'in yürütücülüğünü yaptığı 0-5 yaş arasındaki çocukların zihinsel, dil ve sosyal duygusal gelişimleri üzerinde yaşadıkları çevrenin etkilerini inceleyen araştırma projesine tamamen gönüllü olarak katılıyorum ve çocuğum ..... katılımcı olmasına izin veriyorum.

Çalışmayı istediğim zaman yarıda kesip bırakabileceğimi biliyorum, ve verdiğim bilgilerim bilimsel amaçlı kullanılmasını kabul ediyorum.

**Adı Soyadı .....**

**İmza .....**

## APPENDIX B: Experience History

GENEL BİLGİLER			
Adı soyadı:		Katılımcı numarası:	
Şehir:		Kurum adı:	
Cinsiyet:	K <input type="radio"/> E <input checked="" type="radio"/>	Doğum tarihi-yeri:	-- / -- / ----- -
Engel durumu:	Var <input type="radio"/> Yok <input checked="" type="radio"/>	Premature durumu:	Evet <input type="radio"/> Hayır <input checked="" type="radio"/>

GELİŞ BİLGİLERİ			
Geliş tarihi:	----- / ----- / -----	Geliş yaşı:	
Geliş nedeni: <i>(Geliş nedenleri birden çok ise hepsi işaretlenmelidir)</i>			
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="radio"/> Kimsesiz olması (sokakta bulunması)  <input type="radio"/> Cinsel istismar  <input type="radio"/> Annenin hastalığı (fiziksel)  <input type="radio"/> Annenin hastalığı (psikolojik)  <input type="radio"/> Anneni evi terk etmesi  <input type="radio"/> Aile içi şiddet  <input type="radio"/> Annenin hapiste olması  <input type="radio"/> Annenin ölümü  <input type="radio"/> Anne babanın boşanması         </div> <div style="width: 50%;"> <input type="radio"/> Fiziksel istismar  <input type="radio"/> Duygusal istismar  <input type="radio"/> Babanın hastalığı (fiziksel)  <input type="radio"/> Babanın hastalığı (psikolojik)  <input type="radio"/> Babanın evi terk etmesi  <input type="radio"/> Ailenin ekonomik sıkıntıları  <input type="radio"/> Babanın hapiste olması  <input type="radio"/> Babanın ölümü  <input type="radio"/> Diğer (lütfen belirtiniz)            .....         </div> </div>			

BAKIM ÖYKÜSÜ			
Daha önce başka bir kurumda kaldı mı?		Evet <input type="radio"/> Hayır <input checked="" type="radio"/>	
Cevap <b>EVET</b> ise, birden fazla kurumda kaldıysa veya aynı kurumda farklı zamanlarda kaldıysa, her kurum veya her kalış dönemi için bilgileri ayrı ayrı doldurunuz.			
Birinci Kurum		İkinci Kurum	
Kurum Adı		Kurum Adı	
İli		İli	

Kabul tarihi		Kabul tarihi	
Ayrılış tarihi		Ayrılış tarihi	
<b>Üçüncü Kurum</b>		<b>Dördüncü Kurum</b>	
Kurum Adı		Kurum Adı	
İli		İli	
Kabul tarihi		Kabul tarihi	
Ayrılış tarihi		Ayrılış tarihi	

GEÇMİŞ ÖYKÜSÜ			
Şu anda bulunduğu kuruma gelmeden önce kim tarafından bakılıyordu?	Süre	İlk kez kaldığı kuruma gelmeden önce kim tarafından bakılıyordu?	Süre
<input type="radio"/> Anne-baba		<input type="radio"/> Anne-baba	
<input type="radio"/> Büyükanne – büyükbaba		<input type="radio"/> Büyükanne – büyükbaba	
<input type="radio"/> Akraba		<input type="radio"/> Akraba	
<input type="radio"/> Koruyucu aile		<input type="radio"/> Koruyucu aile	
<input type="radio"/> Evlatlık		<input type="radio"/> Evlatlık	
<input type="radio"/> Diğer .....		<input type="radio"/> Diğer .....	

AİLE BİLGİLERİ		
Öz anne babası sağ ise görüşüyorlar mı?	Evet <input type="radio"/> Hayır <input checked="" type="radio"/>	
Cevap <b>EVET</b> ise, ne şekilde ve hangi sıklıkta? (Birden çok şık işaretlenebilir)	Görüşme şekli	Sıklığı (ve süresi)
	<input type="radio"/> Telefonla	
	<input type="radio"/> Mektupla	
	<input type="radio"/> Kurumda ziyaret	
	<input type="radio"/> Evine giderek	

<b>Kardeşleri var mı?</b>	Evet <input type="radio"/> Hayır <input checked="" type="radio"/> <i>Evet ise aşağıdaki soruları yanıtlayın</i>		
Kardeş sayısı:		Kaçıncı çocuk olduğu:	
Aynı kurumda kalan kardeş sayısı:		Başka kurumlarda kalan kardeş sayısı:	
Kardeşler aynı kurumda	Görüşme şekli	Sıklığı (ve süresi)	

değil ise, ne şekilde ve hangi sıklıkla görüşüyorlar? (Birden çok şık işaretlenebilir)	<input type="radio"/> Telefonla	
	<input type="radio"/> Mektupla	
	<input type="radio"/> Kurumda ziyaret	
	<input type="radio"/> Evine giderek	

GÖNÜLLÜ AİLE BİLGİLERİ		
Şu anda ya da daha önce gönüllü aile tarafından alındığı zamanlar var mı?	Evet <input type="radio"/> Hayır <input checked="" type="radio"/>	
Cevap <b>EVET</b> ise, ne şekilde ve hangi sıklıkta? (Birden çok şık işaretlenebilir)	Zaman	Sıklığı (ve süresi)
	<input type="radio"/> Hafta sonları	
	<input type="radio"/> Tatillerde	

OKUL ÖNCESİ BİLGİLERİ		
Okul öncesi bir kuruma devam etti mi?	Evet <input type="radio"/> Hayır	<input checked="" type="radio"/> Evetse, süresi: .....



### APPENDIX C: Demographic Questionnaire

	ANNE için	BABA için
Doğum tarihi:		
Eğitim durumu:	<input type="checkbox"/> Okuma-yazma bilmiyor <input type="checkbox"/> Okuma yazma biliyor <input type="checkbox"/> İlkokul <input type="checkbox"/> Ortaokul <input type="checkbox"/> Lise <input type="checkbox"/> Üniversite	<input type="checkbox"/> Okuma-yazma bilmiyor <input type="checkbox"/> Okuma yazma biliyor <input type="checkbox"/> İlkokul <input type="checkbox"/> Ortaokul <input type="checkbox"/> Lise <input type="checkbox"/> Üniversite
Mesleği:		
Şu an için ne iş yapıyor?		
Aylık kazancı:	<input type="checkbox"/> 0-500 TL <input type="checkbox"/> 500-1000 TL <input type="checkbox"/> 1000-1500 TL <input type="checkbox"/> 2000-2500 TL <input type="checkbox"/> 2500 üzeri	<input type="checkbox"/> 0-500 TL <input type="checkbox"/> 500-1000 TL <input type="checkbox"/> 1000-1500 TL <input type="checkbox"/> 2000-2500 TL <input type="checkbox"/> 2500 üzeri
Yaşadığı semt neresidir?		
Medeni hali:	<input type="checkbox"/> Evli ve birlikte yaşıyor <input type="checkbox"/> Evli ama eşinden ayrı yaşıyor <input type="checkbox"/> Eşinden ayrılmış <input type="checkbox"/> Eşini kaybetmiş	<input type="checkbox"/> Evli ve birlikte yaşıyor <input type="checkbox"/> Evli ama eşinden ayrı yaşıyor <input type="checkbox"/> Eşinden ayrılmış <input type="checkbox"/> Eşini kaybetmiş

## APPENDIX D: Child Behavior Questionnaire (CBQ)

### Çocuk Davranış Anketi

Açıklamalar: Lütfen başlamadan önce dikkatlice okuyunuz;

Aşağıda çocukların bir takım durumlar karşısında gösterdiği davranışların bir listesi verilmiştir. Lütfen bu ifadeler için çocuğunuzun son “altı ay” ını düşünerek o davranışı ne sıklıkta gerçekleştirdiğini işaretleyiniz. Doğru ya da yanlış cevap yoktur, amacımız sadece çocukların hangi davranışları sergilediğini öğrenmektir.

Her ifade için verilen numaralardan birini işaretleyin,

- 1 çok yanlış
- 2 yanlış
- 3 ne doğru ne yanlış
- 4 doğru
- 5 çok doğru

Lütfen her madde için bu seçeneklerden birini işaretlediğinizden emin olun.

**Lütfen her bir ifade ile ne derece hemfikir olduğunuzu verilen ölçekteki sayılardan uygun olanı işaretleyerek belirtiniz.**

**ÇOCUĞUM:**

		Çok Yanlış	Yanlış	Ne doğru, Ne yanlış	Doğru	Çok doğru
1	Yatağa gitmesi söylendiğinde öfkelenir.	1	2	3	4	5
2	Oturma odasındaki yeni eşyaları hemen fark eder.	1	2	3	4	5
3	Bir şey için sırada beklemekte zorlanır.	1	2	3	4	5
4	Mutsuz ya da üzgünken bir kaç dakika içinde çok daha iyi hissetmeye başlar.	1	2	3	4	5
5	Dokunduğu nesnenin pürüzsüz ya da pürüzlü olduğunu fark eder.	1	2	3	4	5
6	Bir yere çarptığında ya da bir yerinde sıyrık oluştuğunda bir kaç dakika sonra bunu unuttur.	1	2	3	4	5
7	İnsanların yüz özelliklerindeki farklılıklar hakkında genellikle yorum yapmaz (burun ya da kulağın büyüklüğü, dişlerin bozukluğu).	1	2	3	4	5
8	Oynamak istediği bir şeyi bulamayınca öfkelenir.	1	2	3	4	5
9	Eğer beklenmesi söylenirse, başka bir aktiviteye başlamadan önce bekleyebilir.	1	2	3	4	5
10	Biraz eleştirildiğinde bile çılgına döner.	1	2	3	4	5
11	Bir şeye sinirlendiğinde, 10 dakika ya da daha uzun süre canı sıkın ve keyifsiz kalır.	1	2	3	4	5
12	Anne ya da babası görünüşünde bir değişiklik yaptığında fark edip söyler.	1	2	3	4	5
13	Yatağa yattıktan sonra on dakika içinde uykuya dalar.	1	2	3	4	5
14	İhtiyacı olan şeyleri planlayarak geziye gitmeye hazırlanır (örneğin; tatile, büyük anneyi ziyarete gitmek).	1	2	3	4	5
15	Bir şey yapmasına izin verilmediğinde engellenmiş hisseder ve sinirlenir.	1	2	3	4	5

**Lütfen her bir ifade ile ne derece hemfikir olduğunuzu verilen ölçekteki sayılardan uygun olanı işaretleyerek belirtiniz.**

**ÇOCUĞUM:**

		<b>Çok Yanlış</b>	<b>Yanlış</b>	<b>Ne doğru, Ne yanlış</b>	<b>Doğru</b>	<b>Çok doğru</b>
16	Heyecanlı bir aktiviteden sonra sakinleşmekte zorluk çeker.	1	2	3	4	5
17	Alçak sesleri bile dinler görünür (örneğin; bir fısıltı olduğunda dikkatini verir ve dinler).	1	2	3	4	5
18	İlgisini çeken bir konu hakkında konuşularak neşelendirilebilir.	1	2	3	4	5
19	“Sesini biraz alçaltır mısın?” denildiğinde sesini alçaltabilir.	1	2	3	4	5
20	İstediklerini almadığında öfke krizine girer.	1	2	3	4	5
21	Verilen komutları takip etmekte zorlanır (örneğin; “bana oyuncağı getir denildiğinde hemen getirmez, bu komutun bir kaç kez tekrarlanması gerekir”).	1	2	3	4	5
22	Anne veya babası yeni bir kıyafet giydiğinde fark eder.	1	2	3	4	5
23	Anne ve babasının dış görünüşlerindeki değişiklikleri genellikle fark etmez.	1	2	3	4	5
24	Heyecan verici bir olaydan sonra çabuk sakinleşir.	1	2	3	4	5
25	‘Deve Cüce’ gibi oyunlarda iyidir.	1	2	3	4	5
26	Diğer çocuklar tarafından kışkırtıldığında öfkelenip çılgına döner.	1	2	3	4	5
27	Bir hata yaptığında nadiren sinirlenir.	1	2	3	4	5
28	Ona cazip gelen bir şey için “bunu yapmaman gerekiyor” denildiğinde, o şeyin cazibesine karşı koyabilir.	1	2	3	4	5
29	Oyunu bırakması söylenip, çağırıldığında sinirlenir (oyunu bırakmaya hazır değilken).	1	2	3	4	5

**Lütfen her bir ifade ile ne derece hemfikir olduğunuzu verilen ölçekteki sayılardan uygun olanı işaretleyerek belirtiniz.**

**ÇOCUĞUM:**

		<b>Çok Yanlış</b>	<b>Yanlış</b>	<b>Ne doğru, Ne yanlış</b>	<b>Doğru</b>	<b>Çok doğru</b>
30	Ağlaması nadiren bir kaç dakikadan fazla sürer.	1	2	3	4	5
31	Bir görevi yapmakta zorlandığında kolayca sinirlenir (örneğin; lego inşa etmek, resim yapmak, kıyafetlerini giymek).	1	2	3	4	5
32	Parfüm, sigara ya da yemek kokusu gibi kokuları genellikle fark etmez.	1	2	3	4	5
33	"Hayır" denildiğinde yaptığı bir aktiviteyi kolayca bırakır.	1	2	3	4	5
34	Gece uyandığında tekrar uykuya dalmakta zorluk çeker	1	2	3	4	5
35	Karşıdan karşıya geçerken çok dikkatli değildir.	1	2	3	4	5
36	Başka bir çocuk oyuncakını aldığı anda nadiren sinirlenir/karşı çıkar.	1	2	3	4	5
37	Bir nesne üzerindeki küçük bir çöpü, lekeyi bile fark eder.	1	2	3	4	5
38	Mutsuz ya da üzgünken sakinleştirilmesi/yatıştırılması çok zordur.	1	2	3	4	5
39	Öğle uykusu gibi ara uykular için sakinleşip, yatmakta zorlanır.	1	2	3	4	5
40	Tehlikeli olduğu söylenen yerlere yavaş ve dikkatlice yaklaşır.	1	2	3	4	5
41	Yiyeceklerin farklı dokuda oluşuna (örneğin; tamamen ezilmemiş sebze püresi gibi pütürcüklü yiyecekler) oluşuna genellikle tepki vermez.	1	2	3	4	5
42	Sevmediği bir yiyeceği yemesi gerektiğinde hırçınlaşır/huysuzlaşır.	1	2	3	4	5

Lütfen her bir ifade ile ne derece hemfikir olduğunuzu verilen ölçekteki sayılardan uygun olanı işaretleyerek belirtiniz.

**ÇOCUĞUM:**

		Çok Yanlış	Yanlış	Ne doğru, Ne yanlış	Doğru	Çok doğru
43	Söylenileni takip etmekte iyidir (örneğin; “bana oyuncacı getir” denildiğinde hemen getirir).	1	2	3	4	5
44	Mutsuz ya da üzgün olduğunda sakinleştirilmesi/yatıştırılması kolaydır.	1	2	3	4	5
45	Yorgun olduğunda kolayca sinirlenir/huysuzlanır.	1	2	3	4	5
46	Ebeveynlerinin yüz ifadelerini pek fark etmiyor gibi görünür.	1	2	3	4	5
47	Yatağa gitmesi söylendiğinde nadiren mutsuz olur.	1	2	3	4	5
48	Mutsuz ya da üzgünken başka bir şey düşündüğünde kolaylıkla neşesi yerine gelir (örneğin; gezmeye gitmek, bahçede oynamaya çıkmak, oyuncak almaya gitmek).	1	2	3	4	5
49	Uygun olmadığı bir durumda gülümsemesini engelleyebilir/durdurabilir/kontrol edebilir.	1	2	3	4	5
50	Söylenildiğinde kıpırdamadan, usluca oturmakta zorlanır (örneğin; sinema, tiyatro, lokanta otobüs gibi ulaşım araçları).	1	2	3	4	5
51	Eğer birinin sesi alışılmadık bir ses ise bunun hakkında genellikle yorum yapar.	1	2	3	4	5

## **APPENDIX E: Examples for Photographs in Emotion Recognition Task**

Example of Happiness in Face+Body Condition:



Example of Happiness in Face-Only Condition:



## APPENDIX F: Stories for Emmotion Comprehension Task

### SITUATION BASED EMOTIONS:

1. Can bugün televizyonda en sevdiği çizgi filmi izlemiş. Sence Can nasıl hisseder? (*Bana bu resimlerden gösterir misin? / Böyle mi, yoksa böyle mi?*)

<b>HAPPY</b>	1	2	Doğru Cevap	Aldığı Puan
Can			2	

2. Can'ın en sevdiği oyuncak arabasının tekerleği kırılmış. Sence Can nasıl hisseder?

<b>SAD</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

3. Can okulda sessizce resim yaparken birden “bom” diye bir ses duymuş. Sence Can nasıl hisseder?

<b>AFRAID</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

4. Can evden çıkıp okula gitmek için kapıyı açtığı anda kapının önünde kocaman beyaz bir at görmüş. Sence Can nasıl hisseder?

<b>SURPRISED</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

5. Can bütün küpleri üst üste koymuş ve ‘en’ yüksek kuleyi yapmayı başarmış. Sence Can nasıl hisseder?

<b>PRIDE</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

6. Can sınıfta öğretmen ders anlatırken uyuyakalmış ve uykusunda horlamış. Öğretmeni ve bütün arkadaşları bunu duymuş ve ona gülmüşler. Sence Can nasıl hisseder?

<b>SHAME</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

### DESIRE BASED EMOTIONS:

7. Can bir itfaiye arabası olsun istiyormuş. Bir gün annesi ona istediği oyuncak itfaiye arabasını almış. Sence Can nasıl hisseder?

<b>HAPPY</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

8. Can çikolata yemek istiyormuş ama annesi evdeki çikolatanın bittiğini söylemiş. Sence Can nasıl hisseder?

<b>SAD</b>	1	2	Doğru Cevap	Aldığı Puan
Can			2	



**BELIEF BASED EMOTIONS:**

9. Can odadaki kutunun boş olduğunu düşünüyormuş. Ama oyuncaklarını koymak için kutuyu açtığında içinde minicik bir kuş görmüş. Sence Can nasıl hisseder?

<b>SURPRISED</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

10. Can yatağında yatarken oda karanlıkmiş ve camdan yansıyan gölgelerin odanın içinde hareket eden bir şeyler olduğunu düşünmüş. (Ama onlar sadece ağacın dallarının gölgesiymiş.) Sence Can nasıl hisseder?

<b>AFRAID</b>	1	2	Doğru Cevap	Aldığı Puan
Can			1	

**SITUATION BASED EMOTIONS:**

1. Ece köpekleri çok seviyormuş. Doğum gününde ona tatlı, küçük bir köpek hediye almışlar. Sence Ece nasıl hisseder? (*Bana bu resimlerden gösterir misin? / Böyle mi, yoksa böyle mi?*)

<b>HAPPY</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			1	

2. Ece sabah erkenden en sevdiği çizgi filmi izlemek için uyanmış ama seyredirken birden elektrikler kesilmiş ve televizyon kapanmış. Sence Ece nasıl hisseder?

<b>SAD</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			1	

3. Ece annesiyle alışverişe gitmiş. Ama orası çok kalabalıkmiş. Ece annesini görememiş ve kaybolmuş. Sence Ece nasıl hisseder?

<b>AFRAID</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			1	

4. Ece sabah uyandığında annesinin saçlarının pembe renk olduğunu görmüş. Sence Ece nasıl hisseder?

<b>SURPRISED</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			2	

5. Ece arkadaşlarıyla yarış yapmış ve en hızlı koşarak yarışı kazanmış. Sence Ece nasıl hisseder?

<b>PRIDE</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			2	

6. Ece sütünü içerken farkında olmadan burnuna bulaştırmış. Arkadaşları bunu görüp ona gülmüşler. Sence Ece nasıl hisseder?

<b>SHAME</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			1	

**DESIRE BASED EMOTIONS:**

7. Ece pasta yemek istiyormuş. Annesi ona ve kardeşlerine kocaman bir pasta almış. Sence Ece nasıl hisseder?

<b>HAPPY</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			1	

8. Ece hafta sonu en sevdiği parka gitmek istiyormuş. Ama hafta sonu çok yağmur yağmış ve Ece parka gidememiş. Sence Ece nasıl hisseder?

<b>SAD</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			1	

**BELIEF BASED EMOTIONS:**

9. Ece bütün güllerin kırmızı olduğunu düşünüyormuş ama çiçekçinin önünden geçerken mavi güller görmüş. Sence Ece nasıl hisseder?

<b>SURPRISED</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			1	

10. Ece bahçede oynarken uzaktaki siyah bir çöp poşetinin büyük bir ayı olduğunu düşünmüş. Sence Ece nasıl hisseder?

<b>AFRAID</b>	1	2	Doğru Cevap	Aldığı Puan
Ece			2	

Examples of Drawings:



## **APPENDIX G: Turkish Summary**

### **1. GİRİŞ**

Küçük çocukların erken bakım gördüğü ortamın, onların sosyal ve duygusal gelişimleri üzerinde büyük etkisi vardır. Kurumlarda kalan çocukların duyguları anlama becerilerindeki eksiklikler daha önce de tespit edilmiştir ve araştırmalar sonucu erken çevrenin olumsuz etkilerinin koruyucu aile ya da evlat edinme süreci sonrasında da devam ettiği görülmüştür (Pears ve Fisher, 2005 Luke & Banerjee, 2012).

Duyguları anlama konusunda bireylerin gelişimsel farklılıklar göstermesi araştırılan bir konu olmuştur. Bu araştırmalar sonucu sosyal ve duygusal alandaki gelişimsel değişimlerin genellikle 2 ve 5 yaş arasında gerçekleştiği gözlenmiştir (Dunn & Cutting, 1999). Bunun yanı sıra, mizaç özelliklerinin duyguları anlama konusunda önemli bir rol oynadığı da bulunmuştur (Stifter, Cipriano, Conway ve Kelleher, 2008; Pons & Harris, 2005).

Türkiye'de, şu anda devletin çocuk koruma hizmetleri kapsamında birden fazla bakım türü mevcuttur. Bu bağlamda, bakım türlerinin etkilerinin, mizaç özelliklerine göre nasıl farklılaştığını ortaya koymak önemlidir.

#### **1.1. Çocuklarda Duyguları Anlama**

Birbirimize bağımlı olduğumuz hayatın bir gerçeğidir ve sosyalleşme süreci içinde bir çeşit ilişki türü oluşturmak amaçlarımızdan biridir. İletişim her tür ilişkinin oluşmasında temel olarak görülebilir. Dil becerisi, genellikle ilk olarak akla gelen, sözlü iletişimin göstergesi olarak sosyalleşme sürecine katkıda bulunan bir beceridir. Ancak; duyguları anlama becerisi, sözel olmayan iletişimin de bir parçası olarak diğer insanlar hakkında çok daha iyi yorum yapmamızı sağlayan bir özelliktir. Bu bağlamda, duyguları anlama becerisinin gelişim süreçleri çocukluktan başlayarak derinlemesine araştırılmalıdır.

### **1.1.1. Duyguları ve işlevlerini anlama**

Her şeyden önce, duygular iletişimin ilk ve temel bileşenleri olarak görülebilir. Bir bebeğin doğumdan hemen sonraki ilk tepkisi ağlama olduğundan, duyguların etkisi altında dünyaya geldiğimiz söylenebilir (Oatley, Keltner, & Jenkis, 2006). Böylece, duyguların bu dünyaya adaptasyonumuzu kolaylaştırdığından bahsedilebilir. İşlevselciler, duyguların hayatta kalma değeri ile ilişkisini, insanların değer verdikleri olayların kendilerinde bir takım duygular ortaya çıkarması ve bu duyguların davranışlarını yönlendirmesi olarak açıklamışlardır. Korku duygusunun varlığı ile bir yerden uzaklaşmak bu duruma örnek olarak verilebilir. Buna ek olarak biliş de duygu durumundan etkilenir ve sonucunda da diğer insanlar hakkındaki algımız duygulara göre yönlenir (Strayer, 2002). Bu nedenle, erken çocukluk döneminden itibaren yakın çevre, diğerleriyle sağlıklı ilişkiler geliştirmemize katkı sağlayan duyguları anlama becerisinin gelişimi için önemli bir kaynaktır (Weinberg et al., 1999). Duygular iletişimin bir aracı olarak kabul edildiğinde, bebek ve çocukların bakıcıları ve diğer yetişkinlerle güvenli bir bağ kurabilmesi için karşılıklı olarak birbirlerinin duygusal ifadelerinin anlaşılması çok önemlidir (Hepach & Westermann, 2013). Bu açıdan, bir çocuğun başka bir kişinin nasıl hissettiğini, ne zaman ve ne şekilde anlamaya başladığını araştırmak önemlidir.

### **1.1.2. Duyguları anlama becerisinin tanımı**

Duyguları anlama yeteneği farklı ipuçlarından yola çıkarak diğerlerinin nasıl hissettiğini anlamak olarak tanımlanabilir. Temelde, yüz, davranış, ses veya durumsal ipuçlarından duygular hakkında çıkarım yapmaya dayanan bu beceri (Zajdel, Bloom, Fireman, & Larsen, 2013), başarılı bir işlevsellik ve sosyalleşme için oldukça önemlidir (Wishart, Cebula, Willis, & Pitcairn, 2007).

4-6 yaş arası okul öncesi çocuklar ile yapılan bir çalışmada, çocukların duygu tanıma yetenekleri test edilmiştir. Öğretmenlerin verilerine göre çocukların gösterdiği olumlu sosyal davranışlar ve saldırganlık davranışları

karşılaştırıldığında, duyguları anlama becerisi yüksek olan çocuklarda olumlu sosyal davranışların daha sık gözlemlendiği ve bu çocukların uyuşmazlık çözümünde daha iyi olduğu bulunmuştur. Bu nedenle de, akran ilişkilerinin iyi olduğu gözlenmiştir. Sonuç olarak başkalarının duygularını anlama yetenekleri çocukların iyi ilişkiler ve daha olumlu sosyal davranışlar ortaya koymasına yol açtığı söylenilebilir (Liao, Li & Su, 2013).

### **1.1.3. Duygusal ifadeler ve duygu türleri**

Ekman ve Friesen (1976) duygusal ifadeleri, içsel duygu durumunun yüz kaslarındaki farklılıklar ile dışarıdan görünür hale gelmesi olarak tanımlamıştır. Charles Darwin duygusal ifadeleri anlamada çalışmalar yürüten önemli isimlerden biridir. Duygu ifadeleri üzerine bilinen ilk çalışma 1872 yılında Darwin tarafından bebekleri gözlemleyerek yapılmıştır. Daha sonra yetişkinleri gözlemleyerek çalışmalara devam etmiştir. Bu çalışmaları temel alarak duygusal ifadelerin hayatta kalmaya önemli bir hizmeti olduğunu ve evrensel bazı ifadeler olduğunu savunmuştur (aktaran Ekman, 2003).

Daha sonra yüz ifadeleri analiz edilmeye ve duygu ifadeleri belirlenmeye devam edilmiştir. Genel olarak geniş bir yelpazede birçok duygu tanımlanmıştır. Bunlar kendi arasında pozitif ve negatif, temel ve karmaşık gibi farklı yaklaşımlara kategorize edilmiştir (Izard, 2009). Evrensel olarak temel duygular olarak nitelendirilen duygulardan bazıları mutluluk, üzüntü, öfke, korku ve tiksinti duygularıdır. Bunların yanında daha karmaşık duygulardan bazıları utanç, kıskançlık, gurur duygularıdır (Izard, 2007). Hangi duyguların temel ya da karmaşık olarak nitelendirildiği hakkında yürütülen çalışmalardan, özellikle görme ve işitme engelli olarak doğmuş olan çocuklarla yapılanlar mutluluk, üzülmeye, şaşırma gibi bazı temel yüz ifadelerinin bu çocuklarda dahi gözlemlendiği bu duyguların temel ve evrensel duygular olarak ele alınabileceğini ortaya koymuştur. Ancak, daha karmaşık duyguların ifadesi ve anlamlandırılması için bazı bilişsel kapasiteler ve yetişkinlerin rehberliğine ihtiyaç vardır (Oatley, Keltner, & Jenkins, 2006). Bu sebeple, özellikle küçük yaşlarda daha az sayıda

duygusal ifadenin tanınabilir olduđu söylenebilir. Bu bağlamda, duyguları anlama yeteneğinin gelişimsel olarak nasıl farklılıklar gösterdiğini anlamak önemlidir.

#### **1.1.4. Duyguları anlamada gelişimsel farklılıklar**

Duyguları anlama becerisinde en önemli değışim yaşla birlikte gözlenmektedir. Sözel dil kazanımının da bu konuda büyük ölçüde etkisi olduđu söylenebilir. Ancak duygular her zaman sözel olarak ifade edilmediğı ve sözel olmayan ipuçları da içerdiğinden, duyguları tanımada zorluklar yetişkinlerde bile gözlenmiştir (Izard, 2009). Araştırmalar aslında 4 aylık bebeklerin bile başkalarının duygularına karşı duyarlılık gösterdiğini ortaya koymuştur. Özellikle bakıcıları ile birlikte yapılan gözlemlerde bebeklerin bakıcılarının duygusal tepkilerine karşı oldukça duyarlı oldukları gözlenmiştir (Kisilevsky et al., 1998). Özellikle de okul öncesi yıllarda çocukların duyguları anlama becerinde hızlı bir ilerleme gözlenmiştir. Çocukların yaşları ilerledikçe, kendi duygusal ifadelerinde daha bilinçli davrandıkları ve diğerlerinin duygusal ifadelerini takip etmek ve yorumlamakta daha dikkatli olmaya başladıkları bulunmuştur (Grossmann & Johnson, 2007). Ayrıca yaş ilerledikçe çocukların sadece durum temelli yani dışsal faktörlerin yarattığı duyguları değil, arzu temelli ve inanç temelli duyguları da anlamaya başladığı gözlenmiştir (Stein & Levine, 1999). Bir zaman sonra çocuklarda aynı anda birden fazla duygunun dahi yaşanabileceğini öğrendikleri de gözlenmiştir (Harter & Whitesell, 1989). Ancak, şu da bir gerçektir ki duyguları anlama becerisinde bilişsel kapasitelerin yaşla birlikte artmasının etkisinin yanında sosyal deneyimlerin artması da oldukça önemli bir role sahiptir.

#### **1.1.5. Aile ortamındaki sosyal deneyimler ve duyguları anlama becerisi**

Araştırmalar göstermiştir ki bebekler yaşamın erken aylarından başlayarak duyguları ifade etme ve algılama becerisine sahip olurlar. Ancak bu beceri, daha çok yetişkinlerle olan sosyal etkileşimler yoluyla şekillenir (Mancini, Agnoli, Baldaro, Ricci Bitti, & Surcinelli, 2013). Bu bağlamda, aile ortamındaki sosyal deneyimleri ele almak oldukça önemlidir. Özellikle anne ve çocuk arasında

iletiřim üzerine yapılan alıřmalar, anne konuřmalarında ne kadar ok duygusal ifade kullanıyorsa ocuklarının da konuřmalarında o kadar fazla duygusal ifadeye yer verdiėi gstermiřtir (Cervantes & Callanan, 1998). Buna ek olarak, kendi duyguları hakkında daha fazla aıklama yapan annelerin ocuklarının bařkalarının duygularını anlamada ok daha iyi olduėu bulunmuřtur (Denham & Kochanoff, 2002). Ayrıca, ebeveynlerin olduėu kadar kardeřlerin de bu srece katkısı oldukça fazladır. Hughes ve Dunn (1998) tarafından yrtlen bir alıřmada kardeřler arasında duygularla ilgili konuřmaların da ocukların duyguları anlama yeteneėine katkısı olduėu bulunmuřtur. Bařka bir alıřma da sadece bir kardeřin varlıėının dahi ocukların duyguları anlama becerisinin geliřimini olumlu ynde etkilediėini ortaya konmuřtur (Kramer, 2014). Bylece aile ortamının duyguları anlama ile ilgili zengin bir ortam saėladıėı; dolayısıyla ebeveynler, kardeřler ve ocuklar arasındaki etkileřimin kalitesinin duyguları anlama yeteneėinin geliřmesinde nemli bir belirleyici olduėundan bahsedilebilir.

#### **1.1.6. Duyguları anlama ve riskli aile ortamı**

Duyguları anlama becerilerindeki geliřimsel farklılıkları arařtırmak zere Smith ve Walden (1998) dezavantajlı ortamlarda yetiřen okul ncesi ocuklardan oluřan geniř bir rneklemele alıřmıřlardır. Sonuta bu ocukların bazı duyguları anlamasında diėerlerine gre bariz farklılıklar olduėu bulunmuřtur. rneėin, yařadıkları evrede stres yaratan faktrlerin fazla olması sebebiyle bu ocukların korku duygusunu anlamada daha iyi performans gsterdiėi gzlenmiřtir. annelerin iletiřim becerilerinin ok geliřmemiř olması ve annelerin duygusal ierikli konuřmalar yapmamaları nedeniyle, dřk gelirli ailelerle yapılan alıřmalar ok ocukların duyguları anlama becerilerinin az olduėu gzlenmiřtir (Raikes & Thomson, 2008). Ayrıca kt muameleye uėrayan ocukların duygular hakkında bilgisi ve duyguları tanımasında kontrol grubuna gre ciddi bir performans dřklė gzlenmiřtir (Luka & Banerjee, 2013). İhmal ve istismar yklerinin de ocukların duyguları anlama becerisiyle doėrudan bir iliřkisi olduėu gzlenmiřtir (Pons, de Rosnay, Bender, Doudin, Harris, & Gimenez-Dasí, 2014).



### **1.1.7. Duyguları anlama becerisi için riskler ve koruyucu faktörler**

Önce de belirtildiği gibi, başarılı sosyal ve duygusal gelişim diğerlerinin duygularını doğru şekilde anlama ile doğru orantılıdır. Araştırmacılar duygular hakkında yeterli bir farkındalık geliştirmemiş çocukların birçok diğer sorunla da karşı karşıya kaldığını ortaya koymuştur. Anti-sosyal davranışlar buna örnek olabilir (Denham ve ark., 2002). Erken bakım ortamındaki eksiklikler çocukların duyguları anlama becerisinin gelişimine zarar verirken, çocukların bazı bireysel özelliklerinin ise olumlu etkisi olabilir. Mizaç olarak kabul edilen bireysel özelliklerin erken bakım ortamındaki koşulların olumsuz etkilerini telafi etmede önemli bir rol oynadığı söylenmektedir. Bu nedenle, sonraki iki bölümünde, risk altındaki ve sosyal hizmetler bakımında kalan çocukların özellikleri ve farklı mizaç özelliklerinin genel özellikleri ile duyguları anlama becerisi arasındaki ilişkileri ele alınacaktır.

### **1.2. Risk Altındaki Çocuklar**

Yaşamın erken yıllarındaki psikososyal yoksunluklar özellikle çocukların sosyal ve duygusal gelişimine zarar vermektedir (McDermott, Troller-Renfree, Vanderwert, Nelson, Zeanah & Fox, 2013). Sosyo-ekonomik faktörler, ebeveynlik davranışları, aile ortamındaki stres ve aile yapısı çocukların olumsuz gelişimine yol açan bazı risk faktörleri arasında sıralanabilir (Cole & Mitchell, 1998). Özellikle ekonomik faktörler yaşamın devamı için gerekli kaynakların yetersizliği nedeniyle çocukların gelişiminde doğrudan etkilidir (Lee, 2011). Bununla birlikte, genellikle yoksul ailelerde stres, depresyon ve negatif ebeveynlik uygulamaları gibi birden fazla risk faktörü bir araya geldiğinden çocuklarda gelişimsel gecikme ve bozukluklar daha sık gözlenmektedir (Bøe, Lundervold, Hysing, Sivertsen, Heiervang, & Goodman, 2013). Ayrıca terk edilmiş veya istismar görmüş olan sosyal hizmetlerin bakımı altındaki çocuklar da gelişimsel açıdan risk altındaki çocuklar grubundadır. Hatta birçok çalışma koruyucu aileye verilen ya da evlat edinilen çocukların dahi biyolojik aileleri yanında yaşayan çocuklar grubuna göre kurum bakımı altında kaldıkları süre boyunca gelişimsel olarak birçok yönden

olumsuz etkilendikleri ve bu etkilerin sürmekte olduđu gözlenmiştir (Termini, Golden, Lyndon, & Sheaffer, 2009). Bazı çalışmalar da erken yaşta koruyucu aile yanına yerleştirilen çocukların daha az problem davranış sergilediklerini göstermiştir (Koponen, Kalland & Autti-Rämö, 2009).

### **1.2.1. Bakım türleri**

Koruma altındaki çocuklar için geliştirilmiş bakım türleri ülkenin sosyal, ekonomik ve kültürel yapısına bağlı olarak değişim göstermektedir. Günümüzde, Avrupa, Avustralya ve Kuzey Amerika’da büyük ve kalabalık bakım evleri kapatılmaya başlanmıştır. Ancak, özellikle gelişmekte olan üçüncü dünya ülkelerinde, bu tip kurumların yaygınlığı hala yüksektir (Şimşek, Erol, Öztop ve Özcan, 2008).

### **1.2.2. Türkiye’de koruma altındaki çocuklara sunulan bakım türleri**

Ne yazık ki ülkemizde korunmaya muhtaç çok sayıda çocuk vardır. Son yıllarda çocuk koruma sistemi ve politikalarında yeni düzenlemelere gidilmiştir. Türkiye’de mevcut çocuk koruma sistemi birkaç farklı bakım seçeneği sunmaktadır. Korunmaya muhtaç çocuklara verilen bakım türleri; aile ortamında koruma, koruyucu aile hizmeti, evlat edindirme ve kurum altında bakım olarak sıralanabilir. Kurum altında bakım da çocuk yuvaları, sevgi evleri ve çocuk evleri olmak üzere farklı bakım tiplerine ayrılmaktadır (Yazıcı, 2012). Bunu dışında genel olarak, korunmaya muhtaç çocuklar (0-6, 7-18) yaş aralıklarına göre iki gruba yerleştirilir ve bakım formları buna göre düzenlenir.

Çocuk yuvaları: Bu bakım türünde çocuklar büyük gruplar içinde yer alır, genellikle büyük odalarda yemek yer, oynar ve uyurlar. Kendilerine ait giysileri, oyuncakları, hatta bazen kendileri için belirlenmiş bir yatak gibi kişisel eşyaları bulunmamaktadır. Bu kurumlarda, bazen 15-20 çocuk anne olarak hitap ettikleri bakım personeli tarafından bakılmaktadır. Bu kurumlarda bakıcılar vardiya sistemiyle çalışır ve çocuklar tek bir hafta içinde çok sayıda farklı bakıcıların gözetimindedir.

Sevgi Evleri: Türkiye'de büyük kurumları daha küçük birimler ile deřiřtirmek iin geliřtirilen ilk giriřimin rndr. Genellikle birka mřtakil evin bulunduėu bir kampsten oluřmaktadırlar. Her evde 10 ila 12 ocuk daha az deėiřkenlik gsteren bakıcılar tarafından bakılır. Bu evlerde ocukların kendi yatak, dolap ve bazı kiřisel eřyaları vardır. Sevgi evleri ile aile ev ortamı daha fazla benzerlik gstermektedir.

ocuk evleri: 6 ila 8 ocuėun ikamet ettiėi, okul ve hastanelere yakın, genellikle kentlerin yerleřim merkezi alanlarında bulunan mřtakil dairelerdir. ocukların kendi eřyaları olan bu evlerde, yemekler evlerin mutfaklarında piřirilir ve bakıcı anneler daha sabit olduėundan aile ortamına ok daha yakındır.

Koruyucu aile: Yař ve eėitim deėerlendirmelere dayalı sosyal inceleme sonucuna gre ocukların gnll olan koruyucu ailelerin yanına yerleřtirme sistemidir. Ancak, koruyucu aile sisteminin Trkiye'de ok bařarılı bir uygulama olmadığı bir gerektir. Trkiye'de koruyucu aile yanına yerleřtirilen korunmaya muhta ocukların oranı sadece %4 iken, geliřmiř lkelerde %75'tir. Bu nedenle, korunmaya muhta ocuklara ynelik bakım hizmetleri arasında bu uygulamanın payı oldukça sınırlıdır (Yolcuoėlu, 2009).

### **1.2.3. Bakım trleri ve duyguları anlama becerisi arasındaki iliřki**

ocukların duyguları anlama becerileri zerine yapılan birok alıřma, aile yanında kalan ocukların kurum bakımındaki ocuklara kıyasla ok daha iyi performans sergilediėini gstermiřtir (Cheyne & Jahoda, 1971; Schene & Koops, 1990). Ayrıca evlatlık olan ocuklar da kendi aileleri yanında kalan ocuklarla karřılařtırıldıėında duyguları anlama becerisi hakkında deneyim kazanmaları iin evlatlık ocukları uzun bir sreye ihtiya duydukaları ne srlmřtr (Vorria ve ark., 2006). Ayrıca kurumda kalıř sresinin uzunluėunun da duyguları anlama becerisinin geliřmesini olumsuz etkilediėi bulunmuřtur (Tottenham ve ark., 2010).

### **1.3. Mizaç**

Erken çocuk bakım ortamının duyguları anlama becerisine büyük ölçüde etkisi olmakla birlikte biyolojik temele dayanan bireysel farklılıkların da gözardı edilemeyeceği bir gerçektir. Çocukların mizaç özelliklerindeki farklılıklar, çevrenin çocuklar üzerindeki bazı etkilerini hafifletir ya da onların daha fazla etkilenmelerine sebep olabilir.

#### **1.3.1. Mizaç ve farklılaşan duyarlılık teorisi**

Çevresel etkilerin her çocuğu aynı şekilde etkilemediği bir gerçektir (Belsky, 1997). Doğuştan gelen bazı bireysel özellikler bu etkinin oluşumunda oldukça önemlidir. Bireysel özellikler ve çevresel etkilerin etkileşiminden çok sayıda farklı sonuç türeyebilir. Bu sebeple çevresel etkiler araştırılırken bireysel özelliklerin katkısı da göz önüne alınmalıdır (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & Van IJzendoorn, 2011). Diferansiyel duyarlılık teorisine göre çocuğun hassasiyetinin fazla olması, ortamdaki hem pozitif hem de negatif etkilerden çocuğun daha fazla etkilenmesine sebep olmaktadır (Belsky, 1997)

#### **1.3.2. Mizaç özellikleri ve çocuklarda duyguları anlama becerisi**

Mizaç özellikleri de duyguları anlama için önemli bir bileşendir. Ancak duyguları anlama becerisinin altında yatan biyolojik temelli bu bireysel farklılıklar hakkında araştırmalar çok sınırlıdır. Genel olarak saldırgan ve sosyal olarak çekingen mizaç özelliklerine sahip çocukların sosyal anlayışta daha düşük performans gösterdiği gözlenmiştir (Lane et al., 2013). Bandstra, Chambers, McGrath ve (2011) Moore, çocukların empatik tepkilerine ilişkin yaptıkları çalışmada, diğer insanların üzüntü ifadelerine karşı çocukların verdiği tepkilerdeki bireysel farklılıkların köklerini araştırmışlardır. Bu çalışmanın bulguları, düşük negatif reaktivitesi olan çocukların diğerlerinin üzüntü ifadelerine daha fazla ilgi gösterdiğini belirtmiştir. Öte yandan, utangaçlık puanları yüksek olan çocukların, diğerinin üzüntü ifadeleri hakkında daha az farkındalık gösterdiği belirtilmiştir. Ayrıca, yaptıkları

çalışmada, Blankson, O'Brien, Leerkes, Marcovitch ve (2012) Calkins okul öncesi çocukların duyguları anlama becerilerini incelediğinde; yatıştırılma ve duygu düzenleme mizaç boyutları yüksek seviyede olan çocukların, diğerlerinin duygularını anlamada daha iyi olduğunu bulmuşlardır. Ayrıca, utangaçlık mizaç eğilimi yüz ifadelerinin tanınması ve anlamlandırılması ile ilişkili bulunmuştur. Bulgular utangaç çocukların sosyal davranışlarında olumsuzluk yaratan özelliğin diğerlerin duygularını tanımaktaki yetersizlik olabileceği ileri sürülmüştür (Brunet, Mondloch, & Schmidt, 2010).

Özetle, bu çalışmalar, bazı mizaç özelliklerinin, çocukların duyguları anlama becerileri ile ilişkili olduğunu göstermiştir. Ancak, çocukların duyguları anlama becerilerinin hem çevresel hem de bireysel etkilerin katkısıyla şekillendiğini akılda tutmak önemlidir (Pluess & Belsky, 2010).

#### **1.4. Mevcut Çalışma**

Bu çalışmanın esas amacı farklı bakım türlerinin çocukların duyguları anlama becerileri üzerindeki etkilerini incelemektir. Ayrıca, bu çalışmada bu ilişkinin çocuğun mizaç özelliğine göre farklılaşıp farklılaşmadığı da ele alınmaktadır.

## **2. YÖNTEM**

### **2.1 Örneklem**

Bu çalışmaya Çocuk Hizmetleri Genel Müdürlüğü'nün bakımı altında bulunan ve düşük sosyoekonomik koşullarda aileleri yanında yaşayan 3-5 yaş arasında 124 çocuk katılmıştır. 5 farklı ilden 48 kız ve 79 erkek çocuğa ulaşılmış ve çocuğu en iyi tanıyan bakıcı anne ya da biyolojik anneler gönüllülük esasıyla bu çalışmaya katılmıştır.

## 2.2 Ölçekler

Bu çalışmada çocukların demografik bilgilerini belirlemek için aileleri yanında kalan çocuklar için Demografik Bilgi formu, kurum bakımında kalan çocuklar için Deneyim Hikayesi bilgi formu kullanılmıştır. Çocuk Davranış Anketi de çocukların mizaç özelliklerini ölçmek için kullanılmıştır. Bunlara ek olarak çocukların duyguları anlama becerilerini belirlemek amacıyla Duyguları Anlama Ölçeği bu çalışmaya özgü geliştirilmiştir. Duyguları Tanıma ve Duyguları Anlamlandırma olarak iki bölümden oluşan bu ölçümde öncelikle çocukların duyguları fotoğraftan tanınması istenmiştir. Daha sonra anlatılan hikayelerdeki karakterin ne hissettiğini gösterilen resimlerle eşleştirmesi görevi verilmiştir.

## 3. SONUÇLAR

### 3.1., Varyans Analizi Sonuçları

Farklı bakım türleri altında yetişen çocukların duyguları anlama ölçümünden elde ettikleri puanlarda duyguları tanıma ölçeğinde bakım türlerine göre farklılık bulunmuştur. Grup karşılaştırmalarına göre, çocuk yuvalarında kalan çocuklar ( $M = 27.23$ ,  $SD = 6.92$ ) fotoğraflardan duyguları tanıma görevinde, sevgi evlerinde ( $M = 27.23$ ,  $SD = 6.92$ ) ve düşük sosyoekonomik düzeli aile yanında yaşayan çocuklara ( $M = 31.74$ ,  $SD = 8.40$ ) göre daha az başarılı olmuştur. Ancak, hikayeler üzerinden duyguları anlamlandırma görevinde gruplar arasında istatistiksel olarak anlamlı bir fark gözlenmemiştir. Bunun yanı sıra, farklı duyguları anlamada çocuklar genel bir farklılık göstermiştir. Fotoğraflardan duyguları tanıma görevinde bütün çocuklar korku duygusunu ( $M = 6.88$ ,  $SD = .17$ ) diğer bütün duygulardan daha iyi tanırken, gurur ( $M = 2.91$ ,  $SD = .17$ ) ve utanç ( $M = 2.91$ ,  $SD = .17$ ) duygularını tanımada en çok zorlanmışlardır. Ayrıca mutluluk ( $M = 6.02$ ,  $SD = .20$ ) ve üzüntü ( $M = 5.14$ ,  $SD = .19$ ) duygularını bütün gruplardaki çocuklar şaşırma ( $M = 5.14$ ,  $SD = .19$ ), duygusundan daha iyi tanımışlardır. Son olarak, bütün çocuklar arzu temelli duyguları ( $M = .744$ ,  $SD = .03$ ) içeren

hikayeleri durum temelli ( $M = .644$ ,  $SD = .02$ ) ve inanç temelli duyguları ( $M = .589$ ,  $SD = .03$ ) içeren hikayelerden daha iyi yorumlamışlardır.

### 3.2. Hiyerarşik Regresyon Analizleri Sonuçları

Çalışma kapsamında her bir duygu ve bütün duygulardan elde edilen toplam puanlar için iki farklı mizaç özelliğinin (kızgınlık/düş kırıklığı ve algısal hassasiyet) arabulucu etkisini araştırmak üzere iki farklı set hiyerarşik regresyon analizi yapılmıştır. Analizler yalnızca çocuk evinde kalan çocukların duyguları anlama becerilerinin algısal hassasiyet derecelerine göre farklılaştığını göstermiştir. Algısal hassasiyeti yüksek olan ve çocuk evinde kalan çocuklar aile yanındaki çocuklara göre genel olarak duyguları anlamada daha iyi performans sergilemişlerdir.

## 4. TARTIŞMA

### 4.1 Bulgular

Hipotezler doğrultusunda çocuk yuvalarında kalan çocuklar diğer bakım türlerine göre duyguları anlama görevlerinde daha az başarılı olmuştur. Bu bulgu, büyük kurumlarda verilen bakım kalitesinin çocukların duyguları anlama becerilerine olumsuz etkisi olduğunu göstermektedir. Büyük kurumlara kıyasla aile ortamına daha benzer yapılara sahip olan evlerde verilen bakım hizmetlerinin çocukların gelişimine daha olumlu etkisi olduğu savunulabilir. Özellikle hikayelerden duygu tanımlamada gruplar arasında fark bulunmaması da bütün grupların risk altında olduğunu çocukların bu becerilerinin gelişmesinde birebir ilginin azlığı ve stres faktörünün fazlalığının etkisi olabileceğini düşündürmektedir. Duygulara verilen yanıtlar ayrı ayrı değerlendirildiğinde de daha basit ve evrensel kabul edilen duyguların çocuklar tarafından daha iyi tanınması; ancak sosyal değerlendirme gerektiren daha karmaşık duyguların daha az tanımlanması bu çocukların bazı yönlerden eksik kaldıklarının bir kanıtıdır. Ayrıca en çok tanınan duygunun korku duygusu olması da ortamda çok fazla stres yaratan faktör bulunması nedeniyle en

çok gözlemlenen duygunun korku duygusu olabileceğinden kaynaklanıyor olduğu söylenebilir. Mizaç özelliklerinin etkisinin çok fazla olmaması ise duyguları anlama becerisinin gelişmesinde çevresel faktörlerin çok daha fazla etkili olduğunu göstermiştir.

#### **4.2 Çalışmanın Katkıları**

Ülkemizde yeni düzenlemeler sonucunda Çocuk Hizmetlerinin sunduğu bakım hizmetlerinin çocukların duyguları anlama becerilerine olan etkisini inceleyen daha önce yapılmış bir çalışma bulunmamaktadır. Ayrıca bu çalışmada çocukların mizaç özellikleri de bakım türlerinin etkisini anlamak için göz önünde bulundurulmuştur. Bu açıdan bu çalışma yeni düzenlemeler hakkında bilgi veren ve çocukların sağlıklı gelişimlerine katkı sağlayabilecek oldukça önemli bulgular ortaya koymuştur. Bu bağlamda, bu çalışma sonucunda belirtilen bilimsel bulguların da ışığında gelişmiş ülkelerde olduğu gibi büyük kurumların daha küçük birimlere dönüştürülmesi için daha hızlı adımlar atılması sağlanabilir.

#### **4.3 Çalışmanın Sınırlılıkları**

Bu çalışma karşılaştırma grubu olarak sadece düşük sosyoekonomik düzeyli ailelerin çocukları alınmıştır. Duyguları anlama becerilerinin gelişimindeki farklılıkların daha açık bir şekilde gözlenebilmesi için diğer sosyoekonomik düzeydeki örneklerle de karşılaştırma yapılması gerekmektedir.

#### **4.4 Öneriler**

Bu çalışma farklı sosyoekonomik düzeyden örneklerle tekrarlanabilir. Ayrıca, büyük kurumlarda verilen bakımların çocukları olumsuz etkilediği göz önünde bulundurularak çocukların sağlıklı gelişimine katkıda bulunmak adına çeşitli müdahale programları geliştirilebilir.



## APPENDIX H: Tez Fotokopisi İzin Formu

### ENSTİTÜ

Fen Bilimleri Enstitüsü	<input type="checkbox"/>
Sosyal Bilimler Enstitüsü	<input checked="" type="checkbox"/>
Uygulamalı Matematik Enstitüsü	<input type="checkbox"/>
Enformatik Enstitüsü	<input type="checkbox"/>
Deniz Bilimleri Enstitüsü	<input type="checkbox"/>

### YAZARIN

Soyadı : Taşfiliz  
Adı : Duygu  
Bölümü : Psikoloji

**TEZİN ADI** (İngilizce) : How Do Care Types and Individual Differences  
Contribute to Emotion Understanding Skills of Children Under The Care of Social  
Services?

**TEZİN TÜRÜ** : Yüksek Lisans ☒ Doktora ☐

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. ☒

**TEZİN KÜTÜPHANEYE TESLİM TARİHİ:**