

THE ROLE OF HOME AND CHILDCARE CHAOS
IN CHILDREN'S DEVELOPMENT

FİGEN EROĞLU ADA

BOĞAZIÇI UNIVERSITY

2016

THE ROLE OF HOME AND CHILDCARE CHAOS
IN CHILDREN'S DEVELOPMENT

Thesis submitted to the
Institute for Graduate Studies for Social Sciences
in partial fulfillment of the requirements for the degree of

Master of Arts
in
Psychological Sciences

by
Figen Erođlu Ada

Bođaziđi University

2016

DECLARATION OF ORIGINALITY

I, Figen Erođlu Ada, certify that

- I am the sole author of this thesis and that I have fully acknowledged and documented in my thesis all sources of ideas and words, including digital resources, which have been produced or published by another person or institution;
- this thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;
- this is a true copy of the thesis approved by my advisor and thesis committee at Bođaziçi University, including final revisions required by them.

Signature.....

Date 12.08.2016

ABSTRACT

The Role of Home and Childcare Chaos in Children's Development

The present study investigated the additive and interactive roles of home and childcare chaos in predicting preschool children's social competence and adjustment, effortful control, and emotionality. The participants of the study consisted of 269 (137 boys, 132 girls) preschoolers, their mothers and preschool teachers. Home and childcare chaos were measured through mother report of CHAOS and teacher report of LECP scale, respectively. The additive and interactive roles between the home and childcare chaos were tested by using multilevel linear model analyses. The additive role of home and childcare chaos was documented only in the prediction of externalizing problems. In the case of internalizing, only home chaos, and in the case of social competence, only childcare chaos accounted for significant variation. However, the two-way interaction term between the home and childcare chaos was not significant in predicting any of the child developmental outcomes. In other words, the relationship between chaos in one context and child development was not moderated by the chaos in the other context. Besides, children who were exposed to double jeopardy (i.e., high levels of home and childcare chaos) were investigated by using triadic splits on the distribution of home and childcare chaos. Children in this group displayed more externalizing problems than children who were in the double protection group (i.e., low levels of home and childcare chaos). Also, children from low-chaos home environments, but high-chaos childcare environments displayed less social competence than those experiencing average levels of chaos in both contexts. These findings suggest policies focusing on the additive role of risky settings.

ÖZET

Ev ve Okul Öncesi Eğitim Kurumlarındaki Kaosun

Çocukların Gelişimi Üzerindeki Rolü

Bu çalışma ev ve okul öncesi eğitim kurumlarındaki kaosun, okul öncesi dönemdeki çocukların sosyal yetkinlik ve uyum, kendini denetleme becerisi ve duygulanım durumları üzerindeki arttırıcı ve etkileşimli rolünü araştırmayı amaçlamıştır. 269 çocuk (137 erkek, 132 kız), çocukların anneleri ve okul öncesi öğretmenleri çalışmaya katılmıştır. Ev ve okul öncesi eğitim kurumlarındaki kaos, sırasıyla anne tarafından doldurulan CHAOS ölçeği ve öğretmen tarafından doldurulan LECP ölçeği aracılığıyla ölçülmüştür. Ev ve okul öncesi eğitim kurumlarındaki kaosun arttırıcı ve etkileşimli rolü çok düzeyli doğrusal modeller kullanılarak test edilmiştir. Ev ve okul öncesi kurumlarındaki kaosun arttırıcı rolü, yalnızca dışa yönelim sorunların yordanmasında gösterilmiştir. İçe yönelim sorunlarındaki anlamlı farklılığı yalnızca ev kaosu açıklarken sosyal yetkinlikteki anlamlı farklılığı yalnızca okul öncesi eğitim kurumundaki kaos açıklamıştır. Ancak, ev kaosu ve okul öncesi eğitim kurumundaki kaos arasındaki iki-yönlü etkileşimin çocukların gelişim sonuçlarını yordamadığı bulunmuştur. Diğer bir ifadeyle, bir ortamdaki kaos ile çocuk gelişimi arasındaki ilişkinin bir başka ortamdaki kaosun düzeyine göre değişmediği gösterilmiştir. Bunların yanı sıra, hem ev hem de okul öncesi eğitim kurumunda yüksek düzeyde kaosa maruz kalan çifte risk grubundaki çocuklar bu iki ortamdaki kaos dağılımı üzerinde üçlü ayrıştırma yöntemi kullanılarak incelenmiştir. Çifte risk grubundaki bu çocuklar, hem ev hem de okul öncesi kurumunda düşük düzeyde kaosa maruz kalan çifte korunma grubuna göre daha fazla dışa yönelim sorunları sergilemektedir. Ayrıca, ev ortamında düşük ama okul öncesi ortamda

yüksek düzeyde kaosa maruz olan çocuklar, her iki ortamda da ortalama düzeyde kaosa maruz kalan çocuklara göre daha az sosyal yetkinlik sergilemiştir. Bu bulgular, riskli ortamların additif rolüne odaklanan politikaları akla getirmiştir.

ACKNOWLEDGEMENTS

I would like to extend my heartfelt thanks to my thesis advisor, Assoc. Prof. Feyza Çorapçı, for her unconditional support from the initial to the final level of this “chaotic” process. Her invaluable comments, constant guidance and encouragement gave me the motivation to complete this thesis. I deeply appreciate all the time that she spent on me.

I would like to express my gratitude to the members of my thesis committee: Assist. Prof. Elif Aysimi Duman and Assist. Prof. Gizem Arıkan for their positive attention and substantial contribution to the project. I would like to thank Assist. Prof. Nihal Yeniad Malkamak for her valuable suggestions and motivating presence.

I am grateful to Assist. Prof. Cem Köylüođlu for his tolerance, encouragement, and confidence in me through the process. My gratitude is also extended to Prof. İbrahim Haluk Yavuzer for his constructive comments. He responded readily every time I was in need.

I would also like to thank the lovely children, their parents, teachers and preschool administration who participated in this study. I owe special thanks to Nihan Kocayıđıt and Enif Yavuz Dıpşar for their great help in the data collection; without them, nothing would have been easy or efficient.

I am very thankful to Ayşenur Coşkun, Melis Gülerdi, Merve İpek Şentürk, Meriç Özölçer, İpek Elmira Arslan, Gökçe Dinler, Emine Temel, Pelda Çoko, Esra Keçeci, Gökçe Yeniev and Nil Akyüz for their support in data collection and in the coding phase of the study. I sincerely thank Hazal Atalay and Nihan Sönmez for their invaluable and endless support throughout the thesis. I want to acknowledge my dearest friend, Pınar Aldan, for her great contributions, priceless support and genuine friendship.

I also appreciate TÜBİTAK (Scientific and Technological Research Council of Turkey), the Sabanci Foundation and BUVAK for their financial support during my entire academic life.

I express my deepest gratitude to my family for their endless encouragement and being always beside me in everything I did. In particular, I want to thank my mother, Yıldız Erođlu, and my father, Murtaza Erođlu, for their unconditional love and everlasting support throughout my life, to the best brother in the world, Ahmet Erođlu, for bringing joy to my life in this long and tiring process, and to my precious friend İlknur Aydın for all the valuable, enjoyable and fond memories that kept me calm in these challenging and stressful times. I could not have achieved my goal without them.

Last but not least, I would like to dedicate my thesis to my perfect husband, Zeki Ada, who was always with me, patiently, at each and every phase of my thesis (i.e., preparing the test materials and entering and analyzing the data). He also deserves special thanks for being my life partner and making me very happy. I am so lucky to have him in my life...

To My Beloved Husband,

Zeki...

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
1.1 Definition of environmental chaos	2
1.2 Home chaos	4
1.3 Childcare chaos versus childcare quality	12
1.4 Childcare chaos	14
1.5 Home and childcare chaos relationship.....	18
1.6 Social competence and adjustment and executive functions.....	20
1.7 Study goals, hypotheses and proposed models.....	22
CHAPTER 2: METHOD	24
2.1 Participants	24
2.2 Measures.....	27
2.3 Procedures	37
CHAPTER 3: RESULTS	40
3.1 Descriptive statistics of the study variables.....	40
3.2 Relationships between demographic variables and home chaos indicators	42
3.3 Relationships between home chaos indicators and child outcomes	43
3.4 Relationships between childcare chaos and classroom variables.....	44
3.5 Test of the main role of home and childcare chaos.....	46
3.6 Additive and interactive roles of home and childcare chaos.....	51
3.7 Supplemental analyses.....	52
CHAPTER 4: DISCUSSION	54
4.1 Additive relationships of home and childcare chaos in predicting child outcomes.....	54

4.2 Interactive roles of home and childcare chaos in predicting child outcomes..	60
4.3 Niche groups to predict child outcomes	61
4.4 Limitations and future directions of the present study	61
4.5 Contributions and implications.....	63
APPENDIX A: TURKISH FORM OF CONFUSION, HUBBUB, AND ORDER	
SCALE	66
APPENDIX B: TURKISH FORM OF FAMILY ROUTINES INVENTORY-	
SHORT FORM	67
APPENDIX C: TURKISH FORM OF LIFE IN EARLY CHILDHOOD	
PROGRAMS SCALE	68
APPENDIX D: TURKISH FORM OF CHILD BEHAVIOR CHECKLIST	
	69
APPENDIX E: TURKISH FORM OF SOCIAL COMPETENCE BEHAVIOR	
EVALUATION-PRESCHOOL EDITION, SHORT FORM	71
APPENDIX F: TURKISH FORM OF CHILDREN’S BEHAVIOR	
QUESTIONNAIRE VERY SHORT FORM	73
APPENDIX G: TURKISH FORM OF CHILDREN’S BEHAVIOR	
QUESTIONNAIRE VERY SHORT FORM, TEACHER-REPORT VERSION	77
APPENDIX H: CONSENT FORM FOR PRESCHOOL DIRECTORS	
	80
APPENDIX I: CONSENT FORM FOR PARENTS	
	81
APPENDIX J: CONSENT FORM FOR PRESCHOOL TEACHERS	
	82
REFERENCES	83

LIST OF TABLES

Table 1. Descriptive Statistics for Child and Family Demographic Characteristics..	25
Table 2. Descriptive Statistics for Teacher and Classroom Demographic.....	26
Table 3. Descriptive Statistics for Home Chaos Indicators and Child Outcomes	41
Table 4. Descriptive Statistics for LECP, ECERS-R Total and ECERS-R Subscales	42
Table 5. Correlations between Demographic Variables and Home Chaos Indicators	43
Table 6. Correlations between Home Chaos Indicators and Child Outcome	45
Table 7. Correlations between Childcare Chaos and Classroom Variables.....	46
Table 8. Multilevel Models to Predict Social Competence and Adjustment	49
Table 9. Multilevel Models to Predict Effortful Control and Emotionality	50

ABBREVIATIONS

AA: Anger-Aggression

AW: Anxiety-Withdrawal

CBCL: Child Behavior Checklist

CBQ-VSF: Children's Behavior Questionnaire Very Short Form

CHAOS: Confusion, Hubbub, and Order Scale

CIS: Caregiver Interaction Scale

DCCS: Dimensional Card Change Sorting Task

ECERS-R: Early Childhood Environment Rating Scale-Revised

EF: Executive Function

EFF: Sense of Efficacy

FRI: Family Routines Inventory

LECP: Life in Early Childhood Programs

ML: Maximum Likelihood

NICHD ECCRN: National Institute of Child Health and Human Development Early
Child Care Research Network

ORCE: Observational Record of the Caregiving Environment

SC: Social Competence

SCBE-30: Social Competence Behavior Evaluation-Preschool Edition, Short Form

SES: Socioeconomic Status

SPSS: Statistical Package for the Social Sciences

UCLA: The University of California, Los Angeles

CHAPTER 1

INTRODUCTION

According to the ecological perspective by Bronfenbrenner (2005), the microsystem is as an important starting point for contextual analysis of child–environment interactions. For the early years of life, the home environment is the principal microsystem where children’s social and cognitive development occurs (Bronfenbrenner, 1979, 1986). The home environment microsystem consists of social (e.g., caregivers’ beliefs and activities and interpersonal relationships) and physical (e.g., the setting where parent–child interactions occur) components. Children’s experiences at home play the most prominent and largest role in children’s optimal development for cognitive, language and social skills during preschool years (McCartney, 2006; NICHD Early Child Care Research Network, 2002b; 2003; 2006).

Child care is another prominent environment that plays a role in early childhood development (Burchinal, Roberts, Nabors, & Bryant, 1996; Burchinal, Roberts, Riggins, Zeisel, Neebe, & Bryant, 2000; NICHD ECCRN, 2000b; Phillips, McCartney, & Scarr, 1987). Similar to the home environment, childcare microsystem also has both physical and social components (Lambert, Abbott-Shim, & Sibley, 2005; Mashburn, 2008; McCartney, 2006; Phillips & Lowenstein, 2011). Studies pointed to child care’s positive role in children’s cognitive and social competence, yet with smaller effect sizes compared to parenting effects in the home environment (NICHD ECCRN, 2006). While both home and childcare environments represent two distinct microsystems, the relationships between these two have been rarely examined (Bradley, 2010; Watamura, Phillips, Morrissey, McCartney, & Bub, 2011).

According to the ecological system theory by Bronfenbrenner (2005), the mesosystem, which refers to the interconnections between different microsystems, must be considered in order to better understand child development. Therefore, rather than focusing on one microsystem, it is crucial to examine how home and childcare, two prominent and influential microsystems, interact and work together on children's developmental outcomes. This consideration carries not only theoretical importance, but also practical importance by directing policies towards focusing on multiple-setting approach to plan more effective prevention and interventions, especially for at-risk populations (e.g., children live in crowded and noisy home environments and low-income families, three or more caregiver changes, family residence changes and caregiver intimate relationships) (Crosnoe, Leventhal, Wirth, Pierce, & Pianta, 2010; NICHD ECCRN, 2005; Wasik, Ramey, Bryant, & Sparling, 1990). Therefore, the focus of the present study was on the additive and interactive roles of environmental chaos in the home and childcare settings on child development.

1.1 Definition of environmental chaos

Environmental chaos refers to high noise levels (e.g., children, electronics, etc.), high levels of density or crowding, high context traffic patterns (e.g., many people such as neighbors, family members, children coming and going all the time) and instability (e.g., residential moves), as well as a lack of physical and temporal structure (e.g., little is scheduled, few regularities or routines in the environment, nothing has its place) in microsystem contexts such as in the home, day care center or at school (Evans & Wachs, 2010; Martin, Razza, & Brooks-Gunn, 2012; Matheny, Wachs, Ludwig, & Phillips, 1995; Shamama-tus-Sabah & Gillani, 2011).

The study of environmental chaos is important because family routines such as regular meal times are declining because of the compressed domestic time and changing family structure (Lichter & Wethington, 2010; Roy, Tubbs, & Burton, 2004). More children live in crowded and noisy home environments (Evans et al., 2005), and family members describe home environment as unstructured and unpredictable (Bronfenbrenner et al., 1996; Evans et al., 2005).

Given that chaos is associated with increases in interruptions, unpredictable environment, lack of structure and ambient background stimulation, such contexts interfere with effective caregiver-child interactions, which are among the important features to promote healthy child development (Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998; Evans & Wachs, 2010; Hardaway, Wilson, Shaw, & Dishion, 2012; Howe, 2002). Therefore, the role of chaos in family functioning as well as children's cognitive, behavioral and social-emotional development have been studied by researchers over the past two decades (Deater-Deckard, Mullineaux, Beekman, Petrill, Schatschneider, & Thompson, 2009; Evans & Wachs, 2009).

Indeed, various studies have consistently found that a higher level of chaos is associated with children's poorer behavioral, emotional and cognitive developmental outcomes (Deater-Deckard et al. 2009; Evans & English, 2002; Evans et al. 2005; Pike, Iervolin, Eley, Price, & Plomin, 2006). These associations, which will be reviewed in detail in the following sections, point to the importance of calm, structured and predictable settings as important factors to contribute to the well-being of children (Coldwell et al., 2006; Deater-Deckard et al., 2009; Evans, 2006). Therefore, drawing attention to the physical microsystem and studying the role of chaos in child development is very important for understanding the etiology of poorer developmental outcomes and to plan for interventions (Chen, Deater-Deckard,

& Bell, 2014; Kamp Dush, Schmeer, & Taylor, 2013). Educating parents and teachers about the adverse consequences of chaos for children's overall development and how chaos in different ecological systems like home and child care may each contribute to such outcomes may also contribute to prevention efforts (Martin et al., 2012; Shamama-tus-Sabah & Gillani, 2011).

1.2 Home chaos

Although households with high levels of chaos are often associated with lower socioeconomic status (SES) (Brody & Flor, 1997; Evans & English, 2002; Moore, Vandivere, & Ehrle, 2000), chaos correlates with adverse child outcomes over and above SES, suggesting its unique predictive role in child outcomes (Deater-Deckard et al., 2009; Dumas et al., 2005; Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005; Hart, Petrill, Deater-Deckard, & Thompson, 2007). This evidence suggests that the scale measures home environment characteristics that could not be explained solely in terms of socioeconomic differences (Matheny et al., 1995).

Home chaos predicts children's cognitive and socioemotional development in important ways (Deater-Deckard et al., 2009; Evans & Wachs, 2010; Hanscombe, Haworth, Davis, Jaffee, & Plomin, 2010; Hart, Petrill, Deater Deckard, & Thompson, 2007; Martin et al., 2012). As Toker, Akan and Selcuk (2010) stated, there is a great increase in population, unhealthy urbanization, social and economic issues and technological developments in Turkey. These macro level changes resulted in increasingly crowded, noisy, unstructured and unpredictable home environments, which in turn highlight the importance of studying the role of home chaos in child development. Therefore, the relevant literature will be reviewed below with respect

to each child outcome in relation to home chaos. Home chaos in these studies was mostly measured with the CHAOS scale.

1.2.1 Home chaos and children's adjustment outcomes

Studies that measured chaos per mother perceptions have found that home chaos plays a negative role in parent-reported child adjustment that involves children's conduct problems (Coldwell et al., 2006; Deater-Deckard et al., 2009; Hardaway et al., 2012; Pike et al., 2006; Supplee, Unikel, & Shaw, 2007; Valiente, Lemery-Chalfant, & Reiser, 2007); social problems, hyperactivity, anger-aggression, anxiety-withdrawal, impulsivity and attentional focusing (Dumas, Nissley, Nordstrom, Smith, Prinz, & Levine, 2005). Home chaos also negatively correlates with children's behavioral self-regulation (i.e. inhibitory control of emotions and behaviors) (Ackerman & Brown, 2010; Evans & English, 2002; Evans et al., 2005; Fiese & Winter, 2010) and learned helplessness (Evans et al., 2005). Finally, these relationships between home chaos and child problems were supported with a sample from Pakistan, a highly populated non-western country with high levels of societal chaos at macro level (Shamama-tus-Sabah & Gillani, 2011).

There are also studies that investigated the underlying processes of how chaos relates to child behavioral problems. One study (Valiente et al., 2007) found that the link between household chaos and externalizing behavior problems was mediated by children's effortful control and parents' reactions. Valiente et al. (2007) found that family chaos acts to decrease parents' positive reactions to children's negative emotions, which in turn decreases children's effortful control, thereby increasing problem behaviors.

The differential role of home chaos in child development was also investigated in a study by Chen, Deater-Deckard, and Bell (2014). They examined the additive and interactive effects of parenting (e.g., maternal negativity and maternal positivity), child temperament (e.g., effortful control, surgency and negative affectivity) and home chaos on child maladjustment. The results of the study indicated that maternal negativity (negative affect such as rejecting, frowning, cold/harsh tone and observed negative control such as use of criticism, physical control) plays a negative role in maladjustment only for those children who have low effortful control and live in chaotic home environment (Chen et al., 2014). Therefore, the results of the study implied that effortful control of children was a significant moderator for the positive association between maternal negativity and child problem behaviors in the high chaotic home environment, but not in the ordered, calm environment (Chen et al., 2014).

There are also studies that examine the role of certain indicators of home chaos in child outcomes separately. Specifically, some evidence showed that home crowding, as one indicator of chaos, relates to child behavioral adjustment problems at school and in childcare (Corapci, 2010; Evans, Lepore, Shejwal, & Palsane, 1998; Evans, Saegert, & Harris, 2001; Maxwell, 1996; Solari & Mare, 2012). Family instability, which refers to the number of residential moves, changes in caregiver intimate relationships, caregiver changes, is another component of chaos. Studies showed that family instability plays a negative role in adjustment and emotional outcomes such as internalizing problems (Ackerman, Kogos, Youngstrom, Schoff, & Izard, 1999; Adam & Chase-Lansdale, 2002; Forman & Davies, 2003; Ziol-Guest & McKenna, 2009) and externalizing problems (Ackerman et al., 1999; Adam & Chase-Lansdale, 2002; Cavanagh & Huston, 2006; Churchill & Stoneman, 2004;

Cooper, Osborne, Beck, & McLanahan, 2008; Duncan, Brooks-Gunn, & Klebanov, 1994; Fomby & Cherlin 2007; Forman & Davies, 2003; Keltner, 1990; Ziol-Guest & McKenna, 2009).

The lack of family routines, which refers to “observable, repetitive behaviors that involve two or more family members and occur with predictable regularity in the day-to-day and week-to-week life of the family” (Koblinsky, Kuvalanka, & Randolph, 2006, p. 555), is also associated with behavioral outcomes. Moreover, child-reported disorganization and lack of routines, which was measured via The Child Puppet Interview, was positively correlated with higher levels of teacher-reported oppositional defiant disorder symptoms. But, this positive correlation was significant only for children with as high levels of hyperactivity and impulsivity as reported by teachers (Lanza & Drabick, 2011).

In a more recent longitudinal study by Ferretti and Bub (2014) studied whether family routines such as parent–child play, parent–child outside activities, bedtime routine, regular bedtime, and reading routine, assessed through maternal report when the child was 14, 24, 36 months of age, were related to self-regulation and cognitive ability of children at 36 months. It was found that concurrent family routines were important for promoting self-regulation and for the development of later cognitive abilities (Ferretti & Bub, 2014). In addition to all these results, child sex and race/ethnicity were found to be moderators for these associations (Ferretti & Bub, 2014). Concurrent family routines seemed to be more pronounced for boys and African-American children (Ferretti & Bub, 2014). These findings were consistent with the research by Brody and Flor (1997), who also revealed that the routines were positively correlated with self-regulation and negatively correlated with impulsivity among rural, single-parent, African American families.

Independent contributions of five household chaos indicators (noise, crowding, lack of routine, family instability and television usually on) to attention, receptive vocabulary, behavior problems and effortful control were studied by Martin and colleagues (2012). They measured home chaos at child age 2 and the child outcomes at age 5. The results of the study indicated that when all other measures of chaos were accounted for, lack of routines predicted lower scores on receptive vocabulary and poorer delay of gratification. Television usually on predicted high levels of aggression and attention problems among preschool children while controlling other chaos indicators (Martin et al., 2012). As shown in this study, if all other measures of chaos were controlled, noise, crowding and family instability were not associated with any child outcomes (Martin et al., 2012).

There are also studies that examined the role of certain indicators of chaos on adolescent development. For example, Forman and Davies (2003) found that the association between family instability and adolescent's externalizing and internalizing symptoms was mediated by parenting difficulties (i.e., rejection, behavioral control and psychological control) and adolescent appraisals of family insecurity (e.g., lack of confidence in their family unit as a source of support and care even during times of family stress), preoccupation (e.g., distress about the future welfare) and disengagement (e.g., efforts to disengage from the family). These researchers have underscored that family instability acts to increase parenting difficulties, which in turn, correlates with adolescents' appraisal of family insecurity. Lastly, the appraisal of family insecurity plays a role in adolescents' both externalizing and internalizing symptoms. Another study that investigated whether family routines moderated the link between caregivers' financial resource perception and adolescents' behavioral outcomes. The results suggested that the family routine

was negatively associated with delinquency only among adolescents from low-resource homes (Budescu & Taylor, 2013).

1.2.2 Home chaos and children's temperament

The relationship between home chaos and child temperament was investigated in a study by Bridgett, Burt, Laake and Oddi (2013). They found that elevated home chaos were associated with higher maternal ratings on infant frustration/distress to limitations. Besides, studies revealed that if infants have difficult temperament, they are more likely to show sensitivity to higher levels of noise than infants with easy temperament (Wachs & Gandour, 1983). Furthermore, highly active children who live in poorly organized homes exhibit more difficulties in object manipulation skills than do highly active infants who live in more organized homes (Peters-Martin & Wachs, 1984).

1.2.3 Home chaos and children's cognitive outcomes

Various studies found that parent-reported home chaos interfere with children's cognitive performance such as verbal ability (Ackerman & Brown, 2010; Asbury, Wachs & Plomin, 2005; Gaertner, 2013; Hart et al., 2007; Martin et al., 2012; Petrill, Pike, Price, & Plomin, 2004), memory (Hart et al., 2007); attention (Martin et al., 2012) and academic achievement (Shamama-tus-Sabah & Gillani, 2011). Moreover, the relationships between chronic noise exposure and attention, memory and reading deficits were also shown (Evans et al., 1995; Evans, 2001; 2006).

The results of studies conducted outside the Western context were also consistent with the negative impact of the exposure to chronic noise as in research with western samples (Belojevic, Evans, Paunovic, & Jakovljevic, 2012; Hiramatsu,

Tokuyama, Matsui, Miyakita, Osada, & Yamamoto, 2004; Seabi, Cockcroft, Goldschagg, & Greyling, 2012). Chronic noise exposure predicted poor executive functioning in a sample with Serbian children, but only among elementary school aged boys compared to elementary school aged girls (Belojevic et al., 2012); impaired reading comprehension and visual attention in a sample with 9- to 13-year-old South African children (Seabi et al., 2012); long-term memory deficits among 8- to 11-year-old Japanese children (Hiramatsu et al., 2004).

Such findings about the adverse role of chronic noise exposure on child cognitive development have been explained with the habituation hypothesis. Specifically, according to the “habituation hypothesis”, high noise levels lead to child’s habituating to auditory input, thereby depriving the child of an important source of cognitive input, namely language (Cohen, Glass, & Singer, 1973; Deutsch, 1964; Evans & Lepore, 1993). Another explanation based on the “overstimulation hypothesis” argues that high levels of noise make children overwhelmed with too much stimulation. This, in return, leads children to acquire strategies to filter out the unwanted noise (Evans et al., 1998). This filtering also plays a role in the decrease in children’s ability to be involved in joint-attentional activities and leads them to filter out developmentally important stimulation (Evans, Kliewer, & Martin, 1991).

Crowding also played a negative role in children’s reading abilities (Evans, 2006; Evans & Lepore, 1993; Solari & Mare, 2012; Wachs & Gruen, 1982), vocabulary growth and cognitive abilities (Hart & Risley, 1995). Further, studies showed the indirect role of residential crowding in children’s language development via less parental responsiveness (Wachs, 1979; Wachs & Camli, 1991; Evans et al., 1999). Evans and colleagues (1999) stated that there was a link between residential crowding and parental speech quality and this link was mediated with the parental

verbal responsiveness. In other words, high levels of residential crowding are associated with diminished parental verbal responsiveness, which, in turn, plays a role in reduced parental speech quality and usage of less diverse and less sophisticated language to children. Therefore, these findings help explain the delayed language development of children who lives in a crowded home environment (Evans et al., 1999).

In addition, Vernon-Feagans, Garrett-Peters, Willoughby and Mills-Koonce (2012) specifically examined how multiple indicators of household chaos during first three years of children's lives were associated to expressive and receptive language at 36 months. In this study, chaos was measured through objective measures of noise, crowding and disorganization, which were then aggregated rather than parent subjective ratings. Factor analysis of the indicators of household chaos indicated two factors named household disorganization and household instability. The results of the study revealed that household disorganization that referred to household density, the numbers of hours of TV watching, the preparation for home visits, the cleanliness of the home, and the neighborhood noise factors, explained significant and unique variance in children's expressive and receptive language at 36 months even after controlling for possible thirteen covariates such as poverty and maternal education. This association was partially mediated by both negative (i.e., intrusiveness and negative regard) and positive (i.e., sensitivity, positive regard, stimulation of development, animation and reverse-scored of detachment/disengagement) parenting based on parent-child interaction during free play and puzzle tasks (Vernon-Feagans et al., 2012). Specifically, household disorganization plays a role in the decrease in positive parenting and the increase in negative parenting. In turn, reduced positive

and increased negative parenting predicts the variance in both expressive and receptive language development of children.

1.3 Childcare chaos versus childcare quality

Besides the home context, chaos has also been measured in childcare centers in a few studies by asking teachers about their perception of childcare crowding (e.g., There are too many children in our classroom given the amount of space we have), high noise levels (e.g., There is often a fuss going on in our classroom), environmental traffic (e.g., There are many adults in and out of my classroom during the day) and lack of control of temporal and structural regularities (e.g., No matter what we plan for, it usually does not seem to work out; Interruptions make it difficult to keep a schedule in our classroom) (Kontos & Wachs, 2000).

Childcare quality, on the other hand, is primarily defined by two interrelated components, namely structural and process quality. While structural quality refers to the aspects of the physical environment that are often regulated by government, process quality refers to the experiences children have in child care (Clifford, Harms, Pepper & Stuart, 1992; Helburn & Howes, 1996; Lamb, 1998; Marshall, 2004; Vandell & Wolfe, 2000). Structural quality includes group size, adult-child ratio, caregiver's previous experience in caring for children, caregiver's formal education, caregiver's specialized training in child care, teacher wages and staff turnover (Lamb, 1998; Helburn & Howes, 1996; Vandell & Wolfe, 2000). Process quality is primarily determined by the interaction between child and caregiver (i.e., caregiver sensitivity, harshness, detachment and involvement with children), caregiver's attitude toward children, presence of learning activities, health and safety aspects of the childcare environment and presence of appropriate furnishings, equipment,

schedule and curricular activities (Marshall, 2004). While process variables are assumed to play a direct role in children's development, structural variables are assumed to play an indirect role via process quality (Cárcamo et al., 2014; Friedman & Amadeo, 1999; NICHD ECCRN, 2002a).

Childcare quality can be either assessed for a whole setting (e.g., childcare center) or for an individual child (Burchinal, & Nelson, 2000). The childcare level measures characterize the childcare quality by considering aspects such as the caregivers' sensitivity and the appropriateness of activities for all children in the setting. The most commonly and internationally used childcare level rating scale is the Early Childhood Environment Rating Scale-Revised (ECERS-R) developed by Harms, Clifford, and Cryer (1998). ECERS-R (Harms et al, 1998) consists of 7 subscales, which are Space and Furnishings, Personal Care Routines, Language-Reasoning, Activities, Interactions, Program Structure, and Parents and Staff. The reliability and validity of the scale have also been demonstrated (Clifford, Reszka, & Rossbach, 2010). The Profile (Abbott-Shim & Sibley, 1992) and UCLA Early Childhood Observation Form (Stipek, 1993) are other measures used for this level of childcare quality. Measuring childcare quality at this level accepts that all children in the setting have the same childcare quality.

The individual child level measures characterize the quality of care by considering the caregivers' sensitivity and the appropriateness of the activities for a specific individual child. The Observational Record of the Caregiving Environment (ORCE; NICHD ECCRN, 1996) and the Caregiver Interaction Scale (CIS; Arnett, 1989) are prominent examples for individual child level rating. Measuring childcare quality at the individual child level accepts that all children in the setting have different childcare quality.

Besides, there are some studies showed that childcare chaos and poor quality are different but complementary concepts of the childcare environment. One of these studies was conducted by Wachs et al. (2004). They stated that variance in children's situational compliance was uniquely predicted by each concept even when the other measure was statistically controlled. Specifically, while passive compliance was predicted only by chaos, committed compliance was predicted only by the quality of child care. Other evidence comes from the NICHD study which showed that positive caregiving was predicted by chaos over and above the quality measures at 15, 24, and 36 months, as well as both in home and childcare settings (NICHD ECCRN, 2000a).

As a conclusion, some components of childcare chaos (i.e., group size and child-adult ratio) coincide with the indicators of structural quality (Corapci, 2010). However, other components of chaos (i.e., high noise levels, environmental traffic and variability in the program routines and caregivers) do not overlap with the indicators of process and structural quality. Therefore, the involvement of both components in studies that investigate role of childcare context in child development might improve the prediction of variance in child outcomes (Corapci, 2010).

1.4 Childcare chaos and children's developmental outcomes

There is consistent evidence that child-care quality has positive association with children's social, cognitive and language development (Barnett, Young, & Schweinhart, 1998; Belsky, 2001; Burchinal & Cryer, 2003; Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001; Campbell & Ramey, 1994; Peisner-Feinberg et al., 1999; Peisner-Feinberg et al., 2000; Vandell & Wolfe, 2000). There is also growing evidence that chaos in child-care settings interferes with various

aspects of child development and prevents children from healthy engagement with their learning environments (Corapci, 2010; Maxwell, 2010). Because of the increase in mothers' participation in workforce, especially in low income countries (Boyacioglu, 2016), there is also an increase in children's non-parental care experience. However, as stated in the report by Aktan and Akkutay (2014), childcare institutions in Turkey have the least proportion of preschool education expenditure and the largest child-to-adult ratio, as an important childcare chaos indicator, in comparison to other Organization for Economic Cooperation and Development countries. It is very crucial to understand the adverse role of childcare chaos in child development in order to develop policies in light of the previous research findings. Hence, the relevant literature will be reviewed. The majority of the reviewed childcare chaos studies below are based on the objective reports of childcare chaos indicators such as crowding, noise, and disorganization.

1.4.1 Childcare chaos and children's adjustment outcomes

The association of overall daycare chaos on preschool children's compliance behavior was investigated by Wachs, Gurkas and Kontos (2004). This study assessed childcare chaos per teacher ratings on use of space, crowding, environmental traffic, and the degree of control and organization in the classroom. Findings revealed that childcare chaos predicted the variance in children's both situational compliance and passive noncompliance, even after controlling for the childcare quality (Wachs et al., 2004). They also showed that these associations were neither moderated by difficult temperament of child nor mediated by caregiver behaviors (Wachs et al., 2004).

A relatively recent review of research has concluded that crowding in child care, one childcare chaos indicators, relates to poorer behavioral outcomes in

children (Corapci, 2010). More specifically, crowding was related to less positive social behaviors, poor language skills; more hostile, disruptive and aggressive behaviors; poor attachment security even after possible confounding family variables such as income and maternal education were controlled.

Chronic noise exposure, another chaos indicator, has been associated with children's learned helplessness (Evans & Stecker, 2004; Maxwell & Evans, 2000), emotional well-being (Linting, Groeneveld, Vermeer, & van IJzendoorn, 2013), psychological stress, and decreased motivation (Maxwell, 2003; Maxwell, 2010). According to the "diminished control hypothesis," children chronically exposed to ambient background noise, which is out of their control, might feel unable to control events. Perceived uncontrollability has been proposed to explain the increase in learned helplessness.

Childcare instability also carries the potential for detrimental effects on early social development of children (Bratsch-Hines, Mokrova, Vernon-Feagans, & The Family Life Project Key Investigators, 2015; Love et al., 2003). As reviewed by Corapci (2010) various studies showed that "daily instability" in childcare centers, defined as the variability in the number of caregivers, unpredictability in the schedule and instability in the peer group of children plays a negative role in the children's well-being such as school readiness skills, social competence, problem behaviors, and attachment. Later studies have also corroborated previous research and showed that long-term instability (i.e., big changes in provider, location and quantity) up to age 3 is correlated with higher mother ratings of children's externalizing problem behaviors (Pilarz & Hill, 2014) and lower social competence (Bratsch-Hines, Vernon-Feagans, & The Family Life Project Key Investigators, 2013). Furthermore, if children received stable family childcare or stable center-based care throughout

their preschool years, they displayed some gains in fine motor, language, and teacher reported-social skills and moderate gains in pre-academic skills and teacher-reported social skills, respectively (Ansari & Winsler, 2013).

Besides, studies found that the association between daily instability and child's well-being was moderated by some child variables. Specifically, if children had better emotion regulation competence, they were less likely to display adjustment problems even in unstable daycares (De Schipper, Tavecchio, Van IJzendoorn., & Linting, 2003). Also, if there were available trusted caregivers, children, who had easy temperament, were more likely to exhibit well-being and accommodate to the unstable childcare setting (De Schipper, Tavecchio, Van IJzendoorn, & Van Zeijl, 2004). However, if children had difficult temperament, they exhibited adjustment problems in unstable groups even when there were trusted caregivers (De Schipper, et al., 2004).

1.4.2 Childcare chaos and children's cognitive outcomes

Noise is the most frequently studied childcare chaos indicator on children's cognitive outcomes. Specifically, noise in childcare interferes with communication in the classroom (Manlove, Frank, & Vernon-Feagans, 2001; Maxwell, 2010); attention skills (Evans & Lepore, 1993; Hambrick-Dixon, 1988; Hambrick-Dixon, 2002; Maxwell, 2010); memory (Hygge, 1993; Maxwell, 2010); and cognitive as well as language discrimination skills of children (Corapci, 2010; Manlove et al., 2001; Maxwell & Evans, 2000). Impairment of reading and language acquisition by noise exposure was shown in almost all research studies with elementary-school-age children (Evans & Lepore, 1993). Also, Maxwell (1996) showed that children from high density classrooms had lower scores on Children's Embedded Figure Test,

which measures cognitive styles, sense of separate identity and perceptual and problem solving functions, than children from low-density classrooms did (Maxwell, 1996). The two reasons were stated for children's poor language development in noisy childcare centers (Manlove et al., 2001). First reason is that noise in childcare centers might create the need to raise children's voice and which in turn lead them to talk less. The second reason is that chronic noise exposure might result in the difficulty to discriminate the speech and lead children to pay attention to speech (Manlove et al., 2001).

1.5 Home and childcare chaos relationship

As reviewed above, chaos exists not only in the home environment, but also at childcare. The interrelationships of childcare and family reflect mesosystem effects (Kamp Dush et al., 2013; Moore, Vandivere, & Ehrle, 2000). Also, as stated in Bradley (2010), extreme levels of social or physical stimuli or lack of regularity in one microsystem has an association with what happens in the other microsystem. Child temperament, child's stress reactions and communication between parents and caregivers are the important factors that play a role in the impact of chaos on mesosystem relationships (Bradley, 2010). However, little research has focused on the role of chaos between home and childcare systems in child's well-being. Therefore, it is becoming increasingly important to examine the cumulative impacts and complex and dynamic interactions (i.e., compensatory mechanisms) of home and childcare chaos on child development (Bradley, 2010; Watamura et al., 2011).

Kamp Dush, Schmeer, and Taylor (2013) conducted a study among 3-year old children from low income families and examined how chaos at microsystem (i.e. household) and mesosystem level (i.e., maternal work-family-child care) were linked

to mother ratings of child health at age 3 and 5. All household chaos (defined as crowding, TV background noise, lack of regular bedtimes, high noise and unclean and cluttered environment), work chaos (refers to work stress, childcare problems at work, inflexible work schedule and irregular work schedule) and childcare/overwork chaos (defined as multiple jobs, change in child care and child care fell through) were based on maternal reports. The results of the study showed that chaos at household and maternal work was a significant predictor of poorer child health that was measured at ages 3 and 5. The researchers did not find a link between childcare/overwork chaos on child health (Kamp Dush et al., 2013). They argued that the enrollment in school at age 5 may explain more stability in childcare and explain the reasons for the lack of mesosystem chaos and child health link.

Maxwell (1996) documented data that crowded childcare settings aggravated negative behavioral outcomes for children who lived in crowded home settings . For cognitive outcomes, only childcare density had a negative association with child performance. Finally, in a study with second- and fourth-grade children, Maxwell (2003) did not find an interaction between home and classroom density on child outcomes. Only the main effects of home and classroom density were significant.

Moreover, the role of childcare changes in children's social development was studied by also considering the home environment quality by Bratsch-Hines and colleagues (2013) with a sample of African American children from birth to 3 years of age. The results of this study showed that the childcare changes were more strongly associated with poorer social competence of children who were from low quality home environment. The study indicated that childcare changes and the low quality child care may act in the same way because various studies has shown the interactive effects in which children who exposed to both low-quality home and

childcare environment [termed by Watamura et al. (2011) as “double jeopardy”] displayed the poorest social and emotional outcomes, and children who exposed to high quality childcare and low quality home environment [termed by Watamura et al. (2011) as “compensatory care”] displayed fewer behavioral problems and more prosocial behaviors in comparison to their counterparts (Bradley, 2010; McCartney, 2010; McCartney, Dearing, & Taylor, 2003; NICHD ECCRN, 2002b; Peisner-Feinberg, Burchinal, Clifford, Culkin, Howes, & Kagan, 2001; Pinto Pessanha, & Aguiar, 2013; Romano, Kohen, & Findlay, 2010; Votruba-Drzal, Coley, & Chase-Lansdale, 2004; Watamura et al., 2011).

1.6 Social competence and adjustment and effortful control

As reviewed above, previous studies that investigated the associations between environmental chaos and child social and cognitive development have found that the chaos plays a negative role in children’s social competence and adjustment (Coldwell et al., 2006; Deater-Deckard et al., 2009; Dumas et al., 2005; Evans & English, 2002; Evans et al., 2005; Fiese & Winter, 2010; Hardaway et al., 2012; Pike et al., 2006; Supplee et al, 2007) and executive function abilities (Belojevic et al., 2012; Chen et al., 2014; Hart et al., 2007; Valiente et al., 2007). Because of the unique predictive role of environmental chaos, the two aspects of child functioning (e.g., child social competence and adjustment and effortful control) are also of particular importance for the present study.

Social competence refers to the ability to attain personal and social goals in social interaction, forming and maintaining positive social interactions (e.g., peer relationships), the quality of the relationships with others, social understanding for others’ feelings, social knowledge of norms and social skills such as empathy and

prosocial behaviors (Atkins-Burnett, Nicholson, & Meisels, 1997; Howes & James, 2002; LaFreniere & Dumas, 1996; Raver & Zigler, 1997; Rose-Krasnor, 1997; Rubin, Bukowski, & Parker, 1998).

Moreover, various studies have showed that low social competence has an association with poorer child adjustment including internalizing (e.g., anxiety, withdrawal or depression) and externalizing behavior problems (e.g., aggression, disobedience or conduct problems) (Atkins-Burnett et al., 1997; Burt, Obradovic, Long & Masten, 2008; Ladd, 2006; Ladd & Troop-Gordon, 2003; Rubin et al., 1998; Synder, Prichard, Schrepferman, Patric, & Stoolmiller, 2004). It has been stated that children with high social competence display positive interactions with their peers, less problem behaviors and more prosocial behaviors and understand others' emotion expressions (Denham, 1986; Garner, 1996).

The second child outcome of interest is executive function. Executive function (EF) is the bunch of interrelated cognitive abilities and self-regulatory process such as choosing, initiating, implementing, maintaining, controlling and managing thought, feeling, behavior and specific components of motor and sensory functions (Roth, Isquith & Gioia, 2005). EF is related to activity of the frontal lobe (Bialystok & Viswanathan, 2009) and functions as a top down control (Diamond, 2006; Metcalfe & Mischel, 1999; Rueda, Posner, & Rothbart, 2005).

In addition, it has been shown that EF has associated with a variety of cognitive abilities that young children have such as attentional skills, usage of knowledge and theory of mind (Zelazo, Carter, Reznick, & Frye, 1997). However, there was no consensus on the components of this broad abilities and the degree to which these components improve and function irrespective of each other (Bialystok & Viswanathan, 2009). One of the most widely accepted models was proposed by

Miyake and colleagues (Miyake, Friedman, Emerson, Witzk, Howerter, & Wager, 2000). According to this model inhibition (e.g., filtering and suppressing prepotent thoughts, impulses and behaviors in order to control distractions and maintain subdominant behaviors), updating (working memory) (e.g., holding information over short periods of time) and shifting (cognitive flexibility) (e.g., accommodating to changed demands and perspectives) are three components of executive functions (Bialystok & Martin, 2004; Kochanska, Murray, & Harlan, 2000; Miyake, et al., 2000; Welsh, Pennington, & Groisser, 1991). Also, inhibition is the one of the most studied component (Zelazo, et al., 1997).

Besides, the positive correlation between social competence and EF has been investigated in previous studies (Hughes & Ensor, 2008; Razza & Blair, 2009; Rueda et al., 2005). Based on these studies, EF predicts social competence by enabling children to regulating their desires and behaviors appropriately attending to necessities during social interactions.

1.7 Study goals, hypotheses and proposed models

Most research to date has addressed the role of home chaos and childcare chaos in children's developmental outcomes separately (Bratsch-Hines et al., 2015; Coldwell et al., 2006, Dumas et al., 2005, Petrill et al., 2004; Pike et al., 2006; Wachs et al., 2004). As a result, we know little whether home chaos is associated differentially with such developmental outcomes among children who experience varying levels of childcare chaos. Specifically, this study investigated the additive and interactive roles of home and childcare chaos in children's social competence, adjustment and executive functions. The following hypotheses were investigated.

The first goal of the present study was to examine whether home chaos and childcare chaos would directly and independently predict preschoolers' social-emotional and cognitive development. Based on existing research, it was expected that high levels of chaos at home and in child care would additively predict poorer social competence, more behavioral problems, and poorer executive functions (i.e., inhibitory control, selective attention and information-processing skills) in children.

According to the interactive effects model, the link between chaos in one context and children's social adjustment would be moderated by the chaos in the other context. Therefore, it was hypothesized that the link between home chaos and child outcomes would be moderated by childcare chaos. Specifically, home chaos would be expected to be more strongly related to adjustment problems and poorer cognitive development for children who also experience high levels of childcare chaos than those who experience low childcare chaos. It was also expected that non-chaotic, high quality child care would act as a protective, compensatory factor such that children experiencing chaotic home environments would be less adversely affected if they attend a non-chaotic child care.

CHAPTER 2

METHOD

2.1 Participants

A total of 745 families were contacted for the study, and because this study was part of a big study, 272 of them accepted to participate. Three children were excluded because both questionnaire data from their mothers and observational data on children's behavioral and cognitive outcome were missing. Therefore, the final sample consisted of 269 (137 boys, 132 girls) preschoolers, their mothers and preschool teachers. The children's ages ranged from 40 to 83 months ($M = 61.28$, $SD = 8.48$). Two hundred fifty eight children were enrolled in municipal preschools and 11 children were enrolled in private preschools in various districts of Istanbul.

The mean ages of the mothers and fathers were 34.82 years ($SD = 4.62$) and 38.25 ($SD = 4.97$), respectively. Ninety one percent of the families were intact. Eighty percent of the mothers were employed, either part-time or full-time. The majority of the fathers (93.3%) were full-time employed. Thirty percent of the mothers had a high school degree, 44.8% had university degrees including two-year college degrees and 7.1% had graduate degrees. Also, 24.9% of the fathers had a high school degree, 38.4% of the fathers were university graduates including two-year college degrees and 9.6% had graduate degrees. Sixty seven percent of the families reported an income level of at least 3001 TL per month. The mean number of household people including the child was 4.05 ($SD = 1.1$), and the average number of children below 18 years old not including the child was .71 ($SD = .67$). A summary of the descriptive statistics for the child and family demographic variables of the study is presented in Table 1.

Table 1. Descriptive Statistics for Child and Family Demographic Characteristics

Demographic Variable (<i>N</i> = 269)	<i>M</i>	<i>SD</i>
Child age (months)	61.28	8.48
Maternal age (years)	34.82	4.62
Paternal age (years)	38.25	4.97
Number of family members	4.05	1.10
Number of children in family (other than the child)	.71	.67
Household density (Number of family members/Number of rooms)	1.17	.40
Hours at preschool	37.73	5.28
TV on time	4.91	3.08
Demographic Variable (<i>N</i> = 269)	%	
Child sex (male)	50.9	
Change of residences (at least one time)	50	
Change of caregivers (at least one time)	19.3	
Intact family	91.3	
Maternal education		
Less than high school	13.7	
High school	30.3	
At least 2-year college	51.9	
Paternal education		
Less than high school	21.8	
High school	24.9	
At least 2-year college	48	
Maternal employment		
Unemployed	20	
Part-time employed	14.9	
Full-time employed	65.1	
Paternal employment		
Unemployed	3.1	
Part-time employed	3.6	
Full-time employed	93.3	
Monthly income (TL)		
< 1000	2.6	
1000-3000	30.2	
3001-5000	38.7	
5001-7000	17.4	
7001-10000	7.2	
> 10000	3.8	
High maternal employment stress	32.3	

In total, 11 preschools (i.e., 1 private preschool and 10 municipal preschools) were included. Preschools were selected by convenience sampling. Teachers of children aged 4-5 years in these preschools were invited to study. Forty seven teachers participated in the study. Sixty five percent of the teachers were university graduates including two-year college degrees, 20.6% of them had vocational high school degree and 14.5% had high school degree. All of the teachers were female. The teachers' experience level ranged between 1 and 27 years ($M = 6.81$, $SD = 5.79$). The sense of efficacy of teachers ranged from 2.88 to 5 ($M = 4.36$, $SD = .39$). The number of children in the classrooms varied from 8 to 24 ($M = 16.77$, $SD = 4.29$). The child to adult ratio ranged between 2.67 and 19 ($M = 9.69$, $SD = 4.41$). A summary of descriptive information regarding the teacher and classroom demographic variables is presented in Table 2.

Table 2. Descriptive Statistics for Teacher and Classroom Demographic Characteristics

Demographic Variable ($N = 47$)	M	SD
Experience level (years)	6.81	5.79
Sense of efficacy of teacher	4.36	.39
Number of children in the classrooms	16.77	4.29
Child-to-adult ratio	9.69	4.41
Demographic Variable ($N = 47$)	%	
Teacher sex (female)	100	
Education of teacher		
High school	14.5	
Vocational High School	20.6	
University/2-year College	64.9	
Classrooms had at least a child with behavioral problems	44.4	
Classrooms had at least a child with special needs	27.4	

2.2 Measures

2.2.1 Home chaos

The Confusion, Hubbub, and Order Scale (CHAOS; Matheny et al., 1995) was used in order to assess the level of environmental chaos in the home. As stated in the previous sections (e.g., 1.2), mothers rated the confusion, noise and lack of routines in the household with 15 items on a 6-point Likert scale format (from 1 = *definitely untrue* to 6 = *definitely true*) (see Appendix A). The scale's reliability and validity has been demonstrated in past research with satisfactory internal consistency (Cronbach's $\alpha = .79$), and 12-month stability ($r = .74$) (Matheny & Phillips, 2001; Matheny et al., 1995). Sumer, Solak and Harma (2013) adapted the scale into Turkish in order to investigate the role of unemployment in family relationships and home environment. The internal consistency of the Turkish version was satisfactory with a Cronbach alpha = .82. Supporting the scale's validity, home environments of unemployed people were rated as having higher levels of chaos in comparison to the ones of employed people. Moreover, there was a positive relationship between home resource loss and home chaos. In the present study, the scale was also shown to possess a good internal consistency with the Cronbach's alpha of .81.

2.2.2 Family routines

The Family Routines Inventory (FRI; Jensen, James, Boyce, & Hartnett, 1983), which is a mother-report of household routines scale, consists of 28 items. Specifically, there are eight items for work day routines, two items for weekend and leisure time, five items for children's routines, one item for parent(s)' routines, two items for bedtime, three items for meals, two items for extended family, three items

for leaving and homecoming, one item for disciplinary routines and the last item for chores. The mothers' responses involve the frequency of the routines (*almost never; 1-2 times a week; 3-5 times a week; almost every day*). The Cronbach's alpha of the scale was .67. For this study, the FRI was translated into Turkish and translated back into English. In this study, a total of five items of the original scale (i.e. two items for children's routines, one item for bedtime, one item for meals and one item for homecoming) and one item for parent(s)' religious routines were used (see Appendix B). The Cronbach's alpha of five items of original scale and the Cronbach's alpha of the items after adding the religious routines were .48 and .44, respectively, in the present study.

2.2.3 Childcare chaos

The Life in Early Childhood Programs Scale (LECP Scale; Kontos & Wachs, 2000) was used to measure chaos in childcare centers. For this study, LECP Scale was translated into Turkish and translated back into English by advanced graduate students in the psychology and translation departments, and directors of childcare centers. Teachers were asked to rate the childcare chaos with 16 items on a 6-point Likert scale format (from 1 =*definitely untrue* to 6 =*definitely true*) (see Appendix C). The reliability of the original scale is .67 (Wachs et al., 2004). In the present study, the internal consistency of the items was .62.

2.2.4 Child social competence and adjustment

Parent-report of Child Behavior Checklist (CBCL; Achenbach, 1991) is a commonly used measure to identify children's emotional and behavioral problems. The Turkish version of this measure (CBCL, Dumenci, Erol, Achenbach, & Simsek, 2004) was

used in the present study (see Appendix D). There are 100 items which includes the statements of child behavior (e.g., “*Acts too young for his/her age*”; “*Gets in many fights*”; “*Cries a lot*”; “*Can’t concentrate, can’t pay attention for long*”), and parents rate their children on a 3-point Likert scale (from 0 “*not true*” to 2 “*very true or often true*”) (Dumenci et al., 2004). The Cronbach’s alphas of Turkish version of the CBCL 6/18 for total problem scale, internalizing and externalizing subscales were .82, .77 and .76, respectively (Erol & Simsek, 1997; as cited in Erol, Simsek, Oner, & Munir, 2005). Also, test-retest reliability and validity of CBCL were satisfactory. In the present study, the externalizing subscale consisting of 24 items (e.g. “*Destroys things belonging to his/her family or other children*”) and internalizing subscale consisting of 36 items (e.g., “*Avoids looking others in the eye*”) were used. The Cronbach’s alphas for the externalizing and internalizing subscales were .86 and .82, respectively.

In order to assess children’s peer social competence and behavior problem in child care, the Social Competence Behavior Evaluation-Preschool Edition, Short Form (SCBE-30; LaFreniere & Dumas, 1996) was used. Teachers were asked to rate the frequency of children’s behavior on a 6-point scale (1 = *never*; 2-3 = *sometimes*; 4-5 = *often*; 6 = *always*) (see Appendix E). The SCBE-30 consists of 30 items that load on three factors: social competence (SC) reflecting the adaptation of the child (e.g., being well-adjusted, prosocial and flexible), anxiety-withdrawal (AW) indicating children’s anxious, depressed, isolated and overly dependent behaviors, and anger aggression (AA) representing children’s angry, aggressive, and oppositional behaviors. The psychometric evaluation of the Turkish form of questionnaire was investigated by Corapci and colleagues (Corapci, Aksan, Arslan-Yalcin, & Yagmurlu, 2010). They showed that Cronbach’s alphas for internal

consistency of the SC, AA and AW were .88, .87 and .84, respectively. Also, the significant relationships of SCBE subscales with behavior problems, emotion regulation and effortful control skills indicated that the questionnaire has satisfactory validity (Corapci et al., 2010). In the present study, the Cronbach's alphas for the SC, AA and AW were .87, .87, .81, respectively.

Mother reports for externalizing subscale and teacher reports for AA subscale were significantly correlated ($r = .19, p < .004$). However, mother reports for internalizing subscale and teacher reports for AW subscale were not significantly correlated ($r = .09, p > .05$). As a result, while mother reports for externalizing subscale and teacher reports for AA subscale were standardized and averaged to obtain externalizing composite score, mother reports for internalizing subscale and teacher reports for AW subscale were not averaged.

2.2.5 Child temperament

Putnam and Rothbart (2006) developed the Children's Behavior Questionnaire Very Short Form (CBQ-VSF) for the assessment of temperament of children in 3 to 8 years of age. Translated and adapted version of the form by Sari (2009) (see Appendix F) and teacher-report version of the form (Teglasi, Schussler, Gifford, Annotti, Sanders, & Liu 2015) (see Appendix G) were used in the present study. Mothers and teachers were asked to complete the items of this questionnaire on a 7-point Likert scale (from 1 = *extremely untrue of your child* to 7 = *extremely true of your child*). The very short form of the CBQ consists of 36 items assessing the following three scales: Surgency, Negative Affect, and Effortful Control. A total scale score was computed by averaging applicable item scores. According to Sari (2009), internal reliability of the translated questionnaire was .78 ($n=87$) and the

questionnaire had higher internal consistency than the original form. Internal consistency of the teacher-report version of the questionnaire has also been shown in the study by Teglassi and colleagues (Teglassi et al., 2015). In the present study, the Cronbach's alphas for Surgency, Negative Affect and Effortful Control subscales of mother-report version were .65, .65, and .67 respectively. In addition, the Cronbach's alphas for Surgency, Negative Affect and Effortful Control subscales of teacher-report version were .83, .64, and .84 respectively.

Teacher and mother reports of Surgency and Effortful Control subscales were significantly and positively correlated ($r = .34, p < .000$ and $r = .22, p < .001$, respectively). Also, teacher and mother reports of Negative Affect subscale were marginally correlated ($r = .11, p < .09$). Therefore, mother and teacher ratings were averaged to obtain aggregated Surgency, Negative Affect and Effortful Control scores.

2.2.6 Childcare quality

The Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms et al., 1998), a well-documented measure of global classroom quality, was used to observe the childcare quality in the preschools. ECERS-R consists of 43 items with 7 subscales, which are Space and Furnishings (e.g., space for privacy, gross motor equipment), Personal Care Routines (e.g. nap/rest, safety practices), Language-Reasoning (e.g., books and pictures, informal use of language), Activities (e.g., art, blocks), Interactions (e.g., discipline and staff-child interactions), Program Structure (e.g., schedule and free play), and Parents and Staff (e.g., provisions for parents and provisions for personal needs of staff). The items were rated by the observer on a 7-point scale (1 = *inadequate quality*; 3 = *minimal quality*; 5 = *good quality*; 7 =

excellent quality). Clifford and colleagues (Clifford et al., 2010) demonstrated that the scale possesses good reliability and validity scores. The scale was also translated and adapted to Turkish by Tovim (1996). The reliability coefficient of the adapted version was .96 (Tovim, 1996). In the present study, it was shown that the subscales of the ECERS-R had a good internal consistency (Cronbach's $\alpha = .75$).

2.2.7 Family demographic form

Mothers were required to complete a demographic form to give information about child's age, gender, age of entry to child care and time spent in the child care; the number of household people, child's TV exposure time per day, children's screen time per day, and developmental and health history of child, as well as parent level information (e.g., age, education, occupation, marital status; household income; mother's employment stress). The form also covered household level information (e.g., housing type, the number of rooms, household density and TV on time), and family instability information such as the number of change of residences and negative life events in the past 12 months.

2.2.8 Classroom and teacher demographic form

Teachers were required to provide information about their classrooms (e.g., age group of children, type of childcare program, number of children in the classroom, number of girls and boys in the classroom, number of children with special needs and behavioral problems, number of assistant teachers) and their job qualification (e.g., education level, experience and their sense of efficacy).

2.2.9 Child executive functions

Six game-like executive function tasks that were used in the present study consisted of Dimensional Card Change Sorting Task (DCCS) (Zelazo, Frye, & Rapus, 1996); Tapping Task (Diamond & Taylor, 1996; Luria, 1966); Bridge, Walk-A-Line Slowly, Bear-Dragon and Day and Night (Kochanska, Murray, Jacques, Koenig, & Vandegest, 1996). In these tasks, children were asked to adjust their behavior according to task demands by using inhibitory control and attentional mechanisms.

2.2.9.1 Dimensional Card Change Sorting Task

DCCS, which was developed by Zelazo, Frye and Rapus (1996), was used to measure children's switching and inhibition abilities. In this task, there were two separate boxes. One of the boxes had a blue rabbit card attached on it, and the other one had a red boat card. Also, 6 test cards (3 red rabbits and 3 blue boats) were used. In the pre-switch phase that consisted of 6 trials the child was required to sort the test cards by shape or color and put the cards to the correct box. Two demonstration trials were given before testing trials. Children who passed the pre-switch phase proceeded immediately to the post-switch phase without a pause. In the six post-switch trials, the child was asked to switch from sorting by shape to sorting by color (or vice versa). Children who sorted at least five trials correctly proceeded to the border phase that consisted of 12 trials. In the border phase, the child was asked to play the color game if he or she saw the cards with a black border. However, when the child saw the cards with no border, he or she was asked to play the shape game. In order to pass the border version, children needed to sort at least nine cards correctly. A score of 1 was given to children who passed only the pre-switch phase. Children were

given a score of 2 if they passed both the pre- and post-switch phase. Children who also passed the border version were assigned with the score of 3.

2.2.9.2 Tapping task

The experimenter and the child sat on the same side of table by holding a pencil in their hand. Children were asked to tap twice with the pencil immediately after the experimenter tapped once (Rule 1) and tap once with the pencil immediately after the experimenter tapped twice (Rule 2). There were 16 trials and for a total score, the correct numbers of taps across 16 trials were summed. The percentage of the correct taps was also computed.

2.2.9.3 Bridge

In this task, the picture of a land that was divided into two by a river was shown to the child. At the baseline trial, the child was asked to draw a line that represents a bridge in order to help an animal (i.e. a cat for that trial) reach to its food. In the fast-draw trial, the child was requested to draw a bridge as fast as possible to help a rabbit reach to its carrot. Lastly, in the slow-draw trial, the experimenter asked the child to draw a line as slowly as possible to help a turtle reach its cabbage. The duration between the start and end time of each trial was coded in seconds. The total score of the Bridge task was computed by calculating the difference between the durations for the slow- and fast-draw trial.

2.2.9.4 Walk-A-Line-Slowly

A ribbon of 183 cm in length was used by the experimenter. In the baseline trial, the child was requested to walk on the ribbon with his/her feet staying on the ribbon and

without going out of the borders. In the second and third trials representing slow trials, the experimenter not only gave the same instructions to the child, but also demanded the child to walk as slowly as possible on the ribbon. For each trial, the duration between the first step and last step of the child was coded in seconds and the number of the times the child went out of the borders of the ribbon, representing the errors, was recorded. The total score for the Walk-A-Line-Slowly task was computed by averaging the durations for the two slow trials. Because the error scores did not significantly correlate with latency scores ($r = .05, p > .05$), they were not included in the total score.

2.2.9.5 Bear-Dragon

The experimenter introduced two hand puppets, a Bear and a Dragon. While the Bear is presented as “good”, the Dragon is presented as “bad”. The child was required to perform what the Bear says but to ignore what the Dragon says. The six commands such as “touch your ears” and “wave your hands” were given by each puppet. The coding scores ranged between 0 and 3 (0 = *fails to move*, 1 = *performs a partial movement aiming self-correction*, 2 = *performs a wrong movement*, 3 = *performs full, correct movement*) for the Bear. The reversed version of same coding scheme was used for the Dragon. For a total Bear-Dragon score, only the scores of six Dragon trials were summed because the Bear trials did not demand the effortful control. The trials in which the child failed to respond were counted and subtracted from the child’s total score as penalty.

2.2.9.6 Day-Night

The experimenter presented two cards. While one card represented the “day”, other card represented the “night”. The child was required to show the card representing the night when the experimenter said “day” and show the card representing the day when the experimenter said “night”. The coding scores ranged between 0 and 3 (0 = *fails to point*, 1 = *incorrect and never self-corrects*, 2 = *self-corrects*, 3 = *correct on first attempt and doesn't change mind*). For a total Day and Night score, the scores across ten trials were summed. Same with the Bear-Dragon task, the trials in which the child failed to respond were counted and subtracted from the child’s total score as penalty.

2.2.9.7 Effortful control composite score

The total scores of these six tasks except DCC, were standardized and averaged to compute a total score for effortful control (Cronbach’s $\alpha = .69$). In order to generate a composite score for effortful control, the total effortful control score based on an observation data and teacher and mother reports of effortful control scores was averaged (Cronbach’s $\alpha = .49$).

2.2.10 Child emotionality

Knotted Sacks was used in the present study in order to assess child emotionality. In this task, the experimenter gave the child a knotted sack with a gift inside and waited outside for a total of five minutes (i.e. three plus two minutes). The child was instructed to untie the knot to retrieve the gift. As part of the paradigm, the knot was impossible to untie. Child’s emotionality and behavioral regulation was observed during this challenging task. At the end of five minutes, the experimenter tried to

untie the knot and show the child that she was also not able to do it. Then, the experimenter brought another knotted sack that the child could easily untie and take his or her gift.

The coding system was generated based on Cole, Zahn-Waxler, and Smith (1994) and Cole, Wiggins, Radzioch and Pearl (2007). The coders evaluated both the emotion displays and the regulatory attempts of the child over the 10-second epochs (a total of 30 epochs). In the emotion coding, the coders judged which of 3 basic emotions (i.e. anger, sadness and happiness) were present and coded determined the intensity of each emotion on a 0-3 scale (0 =no sign of any cue, 1 = *slight intensity*, 2 = *clear but moderate intensity*, 3 = *strong intensity*). In the regulatory attempts coding, the coders decided which of the four behavioral-organizational qualities of regulatory attempts (i.e. organized-on task, organized-off task, disruptive and immobilized) were present (or absent). Percentage of the frequency of each emotion and emotion regulation variable was computed.

2.3 Procedures

Data collection occurred between March 2015 and April 2016. A cross-sectional design was used. Questionnaire data were collected from children's mothers and preschool teachers. In addition, observational data on children's executive function skills as well as emotion expression and regulation skills were collected from children in their preschools.

Necessary permission for the tasks and testing procedure was obtained from the Boğaziçi University Ethics Committee. Also, permission was obtained from the mayoralities and school administrations to collect data from municipal preschools

(see Appendix H). In the case of private preschool, permission was obtained from the directorate of this childcare center.

After obtaining consent from the school directors for the participation, consent forms and questionnaire packages were sent to parents through teachers (see Appendix I). Consenting mothers completed the questionnaires on their home and child characteristics. The completed questionnaires were collected from classroom teachers in childcare centers by the research assistants.

Preschool teachers who gave their consent for the study (see Appendix J) were requested to fill out questionnaires on social competence and behavior evaluation as well as temperament of the participating children. They also completed a form on the classroom demographic information, their perception of childcare chaos, and their job qualifications.

Observational data on children's socioemotional development and executive function skills were collected in children's schools during school hours. Two graduate developmental psychology students and two undergraduate psychology students were trained on the administration of seven tasks (i.e., one socioemotional and six effortful control tasks) through lectures, watching videos from previous researches, role plays, and a pilot study with a child and ongoing supervision. After extensive training, these trained students introduced themselves as a teacher who plays game with children and started to conduct their observations. Each child was tested individually in a quiet room. The observation on children's executive functions and emotion regulation lasted around 30 minutes. All the tasks were videotaped for coding. Coding of the behavioral data was done by eight trained undergraduate psychology students.

Observational data on childcare quality was collected by using ECERS-R. A graduate developmental psychology student and an undergraduate psychology student were trained on the administration of the ECERS-R through its training videos and a pilot study. After the training, observations occurred during classroom activities. The trained observers rated the certain quality criteria by being in the classroom for at least two and a half hours. The unobserved quality indicators were asked to teachers when the teachers were not responsible in the classroom. Before leaving childcare center all quality ratings was completed during observations.

CHAPTER 3

RESULTS

In the results section, analyses of the present study were presented in five parts. First, descriptive statistics of the home and childcare chaos as well as other study variables will be presented. Second, relationships between demographic variables and home chaos indicators will be presented followed by the relationships between home chaos indicators and child outcomes. Next, relationships between childcare chaos and objective classroom variables will be demonstrated. Lastly, multilevel linear models will be presented to test the main and interactive effects of home and childcare chaos.

3.1 Descriptive statistics of the study variables

Assumptions for the normality, linearity, homoscedasticity and univariate and multivariate outliers of the study variables were checked before testing the hypotheses of the study, and scores on the study variables were all found to be normally distributed except for the percentage of frequency of sadness, disruptive and immobilized. These variables were skewed. The square root-transformations for them were successful in reducing only the skewness of the percentage of frequency of sadness. Means, standard deviations, ranges and reliability analyses of the CHAOS and FRI scale, home density, family instability and TV-on time scores, CBCL, SCBE-30 and teacher and mother report of CBQ-VSF subscales, as well as the externalizing composite, DCCS, child affect and behavioral-organizational quality score are presented in Table 3. In addition, means, standard deviations, ranges and reliability analyses of the LECP scale, ECERS-R Total and ECERS-R Subscales scores are presented in Table 4.

Table 3. Descriptive Statistics for Home Chaos Indicators and Child Outcomes

Variable (<i>N</i> = 269)	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>α</i>
CHAOS (1-6)	2.30	.64	1	4.13	.81
FRI (0-3)	2.02	.50	.33	3	.44
Home Density	1.17	.41	.60	3.33	
Family Instability	2.09	1.66	.00	8	
TV-on Time (hours)	4.83	2.66	1	14	
CBCL					
Externalizing	12.87	6.77	.00	33	.86
Internalizing	14.03	7.36	1	42	.82
SCBE-30					
SC Subscale (1-6)	5.01	.90	2.10	6	.87
AA Subscale (1-6)	1.88	.88	1	6	.87
AW Subscale (1-6)	1.69	.69	1	5.10	.81
Externalizing Composite Score	.01	.82	-1.45	2.97	
CBQ-VSF					
Negative Affect (M) (1-7)	4.72	.75	2.7	6.5	.65
Negative Affect (T) (1-7)	4.16	.83	2.25	6.17	.64
Surgency (M) (1-7)	4.69	.72	2.67	6.67	.65
Surgency (T) (1-7)	4.42	1.14	1.67	7	.83
Effortful Control (M) (1-7)	5.65	.63	3.33	6.92	.67
Effortful Control (T) (1-7)	5.62	.94	1.83	7	.84
DCCS	1.65	.55	0	3	
Child Affect (percentage of time during the Knotted Sack task)					
Anger	23.16	21.88	.00	90	
Sadness	6.88	12.44	.00	88	
Positive	9.19	10.18	.00	48.28	
Behavioral-Organizational Quality (percentage of time during the Knotted Sack task)					
Organized On-Task	64.03	27.71	10.34	100	
Organized Off-Task	50.50	30.94	.00	100	

Note. CHAOS = Confusion, Hubbub, and Order Scale, FRI = Family Routines Inventory, CBCL = Child Behavior Checklist, SCBE-30 = Social Competence Behavior Evaluation-Preschool Edition, Short Form, SC = Social Competence, AA = Anger Aggression, AW = Anxiety Withdrawal, CBQ-VSF = Children's Behavior Questionnaire Very Short Form, DCCS = Dimensional Card Change Sorting Task.

Table 4. Descriptive Statistics for LECP, ECERS-R Total and ECERS-R Subscales

Variable (<i>N</i> = 47)	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>α</i>
LECP	2.15	.43	1.13	3.19	.62
ECERS-R Total	3.28	.58	2.14	4.17	.75
ECERS-R					
Space & Furnishing	3.74	.36	2.75	4.50	
Personal Care	3.90	1.61	1.20	5.60	
Language & Reasoning	3.14	.86	1.25	5.50	
Activities	2.54	.64	1.30	3.55	
Interaction	4.83	1.48	1.80	6.80	
Program Structure	1.66	.27	1.30	2.33	
Parents & Staff	3.00	.31	2.66	3.67	

Note. LECP = Life in Early Childhood Programs Scale, ECERS-R = Early Childhood Environment Rating Scale-Revised.

3.2 Relationships between demographic variables and home chaos indicators

Correlations between demographic variables and home chaos indicators are demonstrated in Table 5. Home chaos was associated with all of the home chaos indicators, except for TV on time. CHAOS scores had a positive correlation with home density scores ($r = .14, p < .05$) and family instability index scores ($r = .14, p < .05$) such that as home density and family instability increased, home chaos also increased. Moreover, there was a significant and negative relationship between CHAOS scores and FRI scores ($r = -.34, p < .01$). That is to say, as family routines increased, home chaos decreased. Also, FRI scores were significantly and negatively correlated with TV-on time ($r = -.13, p < .05$). Mothers reported that as TV-on time increased, family routines decreased. FRI scores were marginally and negatively correlated with the family instability index score ($r = -.11, p = .09$). Lastly, among the demographic variables only family SES, which was computed by standardizing and averaging mother's education level, father's education level and monthly income level, had a significant and negative relationship with home density scores ($r = -.37, p < .01$) such that higher SES families had less home density.

Table 5. Correlations between Demographic Variables and Home Chaos Indicators

	1	2	3	4	5	6	7	8	9
1.Child age	--	-.01	.03	-.11	-.09	-.03	-.00	.00	-.03
2.Child sex		--	-.02	.08	-.04	-.01	-.06	-.04	.04
3.Mother age			--	.11	.04	-.09	-.09	-.04	-.08
4.SES				--	-.05	-.37**	.03	-.08	-.05
5.CHAOS					--	.14*	-.34**	.14*	.04
6.Home density						--	-.04	-.02	.10
7.FRI							--	-.11	-.13*
8.Family instability								--	-.10
9.TVON#									--

Note. Child sex is coded as 0 = boy and 1 = girl.

CHAOS = Confusion, Hubbub, and Order Scale. FRI = Family Routines Inventory. TVON# = TV-on Time (hours)

* $p < .05$. ** $p < .01$

3.3 Relationships between home chaos indicators and child outcomes

Correlations between home chaos indicators and child outcomes are presented in Table 6. Firstly, CHAOS scores were related to many of the child outcomes. It was shown that CHAOS scores had a significant and positive correlation with both externalizing composite scores ($r = .23, p < .01$) and mother report of internalizing scores ($r = .17, p < .05$). That is to say, as home chaos increased, children's behavioral problems also increased. In addition, home chaos scores related significantly and negatively with effortful composite scores ($r = -.16, p < .05$) and marginally and positively with the percentage of frequency of sadness expression during Knotted Sacks task ($r = .14, p = .06$).

Secondly, home density scores also established significant correlations with most of the child outcome variables. Home density scores correlated significantly with teacher report of AW and SC scores, $r = .14, p < .05$ and $r = -.19, p < .01$, respectively, such that as home density increased, children were rated by their teachers as being more anxious and withdrawn as well as less socially competent. There was also a marginal and positive correlation between home density and

externalizing composite scores ($r = .12, p = .06$). Furthermore, home density scores related significantly and negatively with effortful composite scores ($r = -.18, p < .01$) and positively with the percentage of frequency of sadness expression during Knotted Sacks task ($r = .18, p < .05$). As home density increased, children showed less inhibitory control and more observed sadness.

Thirdly, family instability and TV-on time correlated marginally with some of the child outcomes while family routines did not relate to any of them. Family instability established a marginal and positive relationship with teacher report of SC ($r = .13, p = .05$) and a marginal and negative association with the percentage of frequency of sadness expression during Knotted Sacks task ($r = -.14, p = .08$). There was a marginal and positive correlation between TV-on time and the percentage of frequency of anger expression during Knotted Sacks task ($r = .14, p = .07$).

3.4 Relationships between childcare chaos and classroom variables

Correlations between childcare chaos and classroom variables are demonstrated in Table 7. Firstly, LECP scores correlated significantly and negatively only with EFF scores ($r = -.50, p < .01$) such that as the sense of efficacy of teachers increased, the teacher report of childcare chaos decreased. On the other hand, ECERS-R scores were related to many of the classroom variables. As shown in Table 7, ECERS-R had a significant and positive correlation with the number of children in the class ($r = .78, p < .01$), child-to-adult ratio ($r = .60, p < .01$), the presence of children with special needs ($r = .49, p < .01$) and education level of the teacher, ($r = .65, p < .01$), but a significant and negative correlation with teacher experience ($r = -.48, p < .01$) and EFF scores ($r = -.41, p < .05$).

Table 6. Correlations between Home Chaos Indicators and Child Outcome

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.CHAOS	--	.14*	-.34**	.14*	.04	-.16*	.02	.23**	-.05	.01	.17*	.07	.14	.01	.01
2.Home density		--	-.04	-.02	.10	-.18**	-.05	.12	-.19**	.14*	.09	-.03	.18*	-.07	-.00
3.FRI			--	-.11	-.13*	.08	-.04	-.10	-.07	-.09	-.10	-.06	.05	-.01	-.01
4.Family instability				--	-.10	.02	-.08	-.04	.13	-.02	.09	-.09	-.14	.03	.08
5.TVON#					--	-.04	.04	-.06	.08	-.02	-.05	.14	-.09	.00	.01
6.Effortful control composite score						--	.28**	-.38**	.52**	-.25**	-.06	-.02	-.13	.01	.09
7.DCCS							--	-.08	.15*	-.06	-.00	.11	.01	.05	.07
8.Externalizing composite score								--	-.42**	.13*	.42**	-.02	.17*	.12	-.04
9.SC subscale									--	-.39**	-.01	.03	-.10	-.14	.05
10.AW subscale										--	.10	-.08	.00	.02	-.17**
11.Internalizing											--	-.06	.08	.05	.03
12.Anger												--	-.02	-.01	.43**
13.Sadness													--	-.03	-.18**
14.Positive														--	-.10
15.Organized-on task															--

Note. CHAOS = Confusion, Hubbub, and Order Scale, FRI = Family Routines Inventory, TVON# = TV-on Time (hours), DCCS = Dimensional Card Change Sorting Task, SC = Social Competence, AW = Anxiety-Withdrawal

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

Table 7. Correlations between Childcare Chaos and Classroom Variables

	1	2	3	4	5	6	7	8	9	10
1.LECP	--	.11	.07	.12	-.12	.14	.05	.14	-.10	-.50**
2.ECERS-R		--	.78**	.60**	-.21	.49**	.10	.65**	-.48**	-.41*
3.# of ch in class			--	.60**	-.16	.46**	.12	.41**	-.26	-.01
4.Child-to-adult ratio				--	-.14	.56**	.07	.22	-.24	-.10
5.Boy-to-girl ratio					--	-.24	-.23	-.27	-.00	.25
6.Presence of ch with sp need						--	.34*	.47**	-.36*	-.19
7.Presence of ch with bhv prb							--	.21	-.21	-.08
8.Teacher education								--	-.60**	-.26
9.Teacher experience									--	.08
10.EFF										--

Note. LECP = Life in Early Childhood Programs Scale, ECERS-R = Early Childhood Environment Rating Scale-Revised, EFF = The sense of efficacy of teacher

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

3.5 Test of the main role of home and childcare chaos

The design of present study had a nested structure (e.g., children within classrooms), and hence children within one childcare classroom might be more similar to each other than to children in other classroom (Field, 2012). By means of multilevel linear model analyses, it is possible to overcome the problems about the assumptions of independence and homogeneity of regression slopes (Field, 2012). For these reasons, multilevel linear model analyses were conducted in order to investigate the main and interactive effects of home and childcare chaos in the prediction of child outcomes. The models were built up from one with only fixed parameters those with a random intercept only, and then those models with a random intercept and random slope. In all of the models that were established for each child outcome, including a random intercept and random slope did not create a difference to the model which was tested by using the change in the -2 log-likelihood. In other words, the fit of the models significantly promoted only when the variance of intercepts was included. Therefore, hypotheses were tested using a one-level random intercept model using

maximum likelihood (ML) estimation. SPSS (Version 19.0; IBM Corp., 2010) was used to test these hypotheses.

3.5.1 Home chaos and child outcomes

A total of ten multilevel analyses were conducted to investigate the main role of the home chaos to predict externalizing composite, teacher report of SC and AW, mother report of internalizing problems, effortful control composite, DCCS, the percentage of frequency of anger, sadness, and positive expression and the percentage of frequency of organized-on task behaviors.

In the models in which the outcome variables were child social competence and adjustment, the predictors were home chaos, effortful control composite and SES. On the other hand, when the outcome variables were child effortful control and emotionality, predictors were home chaos and SES. Results of the multilevel models for the main role of home chaos in predicting social competence and adjustment are presented in Table 8. Also, Table 9 demonstrates the main role of home chaos in predicting child effortful control and emotionality.

After controlling for child effortful control and SES, higher home chaos was related to higher externalizing problems, $F(1, 237.14) = 10.32, p < .01$ and to higher mother report of internalizing problems, $F(1, 234.91) = 5.49, p < .05$.

On the other hand, home chaos was not related with teacher report of anxiety-withdrawal, $F(1, 210.03) = 1.12, p > .05$, social competence, $F(1, 201.12) = .18, p > .05$, and DCCS scores, $F(1, 239.96) = .27, p > .05$.

When SES was controlled, home chaos was not associated with effortful control composite, $F(1, 234.66) = 3.63, p = .06$. There was only a marginal

correlation between them. However, higher SES correlated significantly and positively with higher effortful control composite, $F(1, 234.02) = 5.61, p < .05$.

Finally, there was not a significant correlation between home chaos and the percentage of frequency of anger, $F(1, 239.96) = .27, p > .05$, sadness, $F(1, 177.39) = 3.42, p = .07$, positive emotion, $F(1, 181) = .04, p > .05$, and organized-on task behaviors, $F(1, 214.95) = .04, p > .05$, during the Knotted Sacks task.

3.5.2 Childcare chaos and child outcomes

Results of the multilevel models for the main role of childcare chaos in predicting social competence and adjustment are presented in Table 8. Also, Table 9 demonstrates the main role of childcare chaos in predicting child effortful control and emotionality.

After controlling for child effortful control, SES and ECERS-R, higher childcare chaos was related to higher externalizing problems, $F(1, 35.35) = 6.67, p < .05$. As childcare chaos decreased, children were also rated by their teachers as being more socially competent, $F(1, 36.71) = 7.73, p < .01$.

On the other hand, childcare chaos was not related with mother report of internalizing problems, $F(1, 193) = .00, p > .05$, teacher report of anxiety-withdrawal, $F(1, 34.14) = 1.03, p > .05$, effortful control composite, $F(1, 31.55) = 1.29, p > .05$, and to DCCS, $F(1, 25.81) = .52, p > .05$.

Besides, there was not a significant correlation between childcare chaos and the percentage of frequency of anger, $F(1, 24.73) = .08, p > .05$, sadness, $F(1, 34.67) = 1.16, p > .05$, positive emotion, $F(1, 146) = .08, p > .05$, and organized-on task behaviors, $F(1, 28.49) = .03, p > .05$.

Table 8. Multilevel Models to Predict Social Competence and Adjustment

Multilevel Model Results for the Main Role of Home Chaos in Predicting Social Competence and Adjustment												
	Externalizing			Internalizing (M)			AW subscale (T)			SC subscale (T)		
	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	T
CHAOS	.01	.00	3.21**	.11	.05	2.34*	-.00	.00	-1.06	-.00	.00	-.43
Effortful control composite	-.44	.08	-5.73***	-.20	.75	-.27	-.26	.07	-3.76***	.67	.07	9.48***
SES	.04	.05	.79	-1.51	.57	-2.64**	-.08	.05	-1.62	.02	.05	.47

Multilevel Model Results for the Main Role of Childcare Chaos in Predicting Social Competence and Adjustment												
	Externalizing			Internalizing (M)			AW subscale (T)			SC subscale (T)		
	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	T
LECP	.02	.01	2.58*	-.00	.07	-.02	.01	.01	1.01	-.04	.01	-2.78**
Effortful control composite	-.42	.08	-5.20***	.13	.82	.16	-.29	.08	-3.76***	.72	.08	9.35***
SES	.04	.06	.78	-1.52	.61	-2.50*	-.09	.05	-1.59	.03	.05	.49
ECERS-R	.13	.09	1.42	1.13	.81	1.38	.06	.13	.49	-.08	.14	-.57

Multilevel Model Results for the Additive and Interactive Role of Home and Childcare Chaos in Predicting Social Competence and Adjustment												
	Externalizing			Internalizing (M)			AW subscale (T)			SC subscale (T)		
	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t
CHAOS	.00	.03	.22	.14	.29	.48	.00	.02	.13	-.03	.02	-1.39
LECP	.01	.03	.45	.04	.29	.15	.02	.02	.95	-.06	.02	-2.55*
Effortful control composite	-.40	.08	-5.17***	.21	.78	.27	-.27	.07	-3.73***	.71	.07	9.94***
SES	.03	.05	.64	-1.40	.59	-2.36*	-.08	.05	-1.66	.01	.05	.18
CHAOSxLECP	.00	.00	.34	-.00	.01	-.11	-.00	.00	-.30	.00	.00	1.36

Multilevel Model Results for the Main Role of Home and Childcare Chaos in Predicting Social Competence and Adjustment After Controlling For Chaos in the Other Context												
	Externalizing			Internalizing (M)			AW subscale (T)			SC subscale (T)		
	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t
CHAOS	.01	.00	3.13**	.11	.05	2.12*	-.00	.00	-.94	-.00	.00	-.33
LECP	.02	.01	2.45*	.01	.07	.16	.02	.01	1.64	-.03	.01	-2.88**
Effortful control composite	-.40	.08	-5.28***	.22	.78	.28	-.26	.07	-3.72***	.70	.07	9.81***
SES	.04	.05	.65	-1.40	.59	-2.36*	-.08	.05	-1.68	.01	.05	.24

Note. AW = Anxiety-Withdrawal, SC = Social Competence, CHAOS = Confusion, Hubbub, and Order Scale, LECP = Life in Early Childhood Programs Scale, ECERS-R = Early Childhood Environment Rating Scale-Revised.

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

Table 9. Multilevel Models to Predict Effortful Control and Emotionality

Multilevel Model Results for the Main Role of Home Chaos in Predicting Effortful Control and Emotionality

	Effortful Control Composite			DCCS			Anger			Sadness			Positive			Organized-on task		
	Coef	SE	T	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t
CHAOS	-.01	.00	-1.91	.00	.00	.52	.07	.16	.46	.03	.01	1.85	.01	.08	.20	.04	.19	.20
SES	.11	.04	2.37*	.09	.04	2.09*	-1.21	1.88	-.64	-.14	.17	-.82	-1.43	.88	-1.62	-4.83	2.24	-2.16*

Multilevel Model Results for the Main Role of Childcare Chaos in Predicting Effortful Control and Emotionality

	Effortful Control Composite			DCCS			Anger			Sadness			Positive			Organized-on task		
	Coef	SE	T	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t
LECP	-.01	.01	-1.13	-.00	.00	-.72	-.08	.30	-.28	.03	.03	1.08	.03	.12	.28	-.06	.34	-.18
SES	.11	.05	2.20*	.07	.04	1.69	-.51	2.10	-.24	.02	.19	.09	-1.74	1.02	-1.71	-5.59	2.47	-2.26*
ECERS-R	.17	.10	1.79	.14	.06	2.19*	8.63	3.38	2.55*	-.01	.30	-.04	.57	1.41	.40	1.48	3.72	.40

Multilevel Model Results for the Additive and Interactive Role of Home and Childcare Chaos in Predicting Effortful Control and Emotionality

	Effortful Control Composite			DCCS			Anger			Sadness			Positive			Organized-on task		
	Coef	SE	T	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t
CHAOS	.03	.02	1.25	.02	.02	1.00	.19	.92	.21	-.11	.09	-1.22	-.62	.46	-1.33	.11	1.17	.09
LECP	.03	.02	1.26	.01	.02	.32	-.13	.91	-.14	-.13	.09	-1.49	-.53	.45	-1.17	-.17	1.15	-.15
SES	.12	.05	2.56*	.08	.04	1.89	-.67	1.94	-.35	-.15	.18	-.81	-1.56	.94	-1.65	-4.86	2.36	-2.06*
CHAOSxLECP	-.00	.00	-1.58	-.00	.00	-.76	-.00	.02	-.10	.00	.00	1.54	.02	.01	1.39	-.00	.03	-.01

Multilevel Model Results for the Main Role of Home and Childcare Chaos in Predicting Effortful Control and Emotionality After Controlling For Chaos in the Other Context

	Effortful Control Composite			DCCS			Anger			Sadness			Positive			Organized-on task		
	Coef	SE	T	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t	Coef	SE	t
CHAOS	-.01	.00	-1.67	.00	.00	1.42	.10	.16	.62	.03	.02	1.69	.02	.08	.21	.09	.20	.46
LECP	-.00	.01	-.62	-.01	.00	-1.49	-.22	.29	-.76	-.00	.02	-.04	.08	.11	.70	-.18	.31	-.60
SES	.12	.05	2.49*	.08	.04	1.89	-.67	1.94	-.35	-.15	.19	-.78	-1.53	.95	-1.61	-4.86	2.36	-2.06*

Note. DCCS = Dimensional Card Change Sorting Task, CHAOS = Confusion, Hubbub and Order Scale, LECP = Life in Early Childhood Programs Scale, ECERS-R = Early Childhood Environment Rating Scale-Revised. * $p < .05$

Lastly, childcare quality was not associated with the percentage of frequency of sadness, $F(1, 32.35) = .00, p > .05$, positive emotion expression, $F(1, 146) = .16, p > .05$ and organized-on task behaviors, $F(1, 22.96) = .16, p > .05$. However, as quality of child care increased, children displayed less anger during Knotted Sacks task, $F(1, 23.05) = 6.51, p < .05$.

3.6 Additive and interactive roles of home and childcare chaos

The additive and interactive roles of the home and childcare chaos in predicting child outcomes were examined by entering home and childcare chaos, effortful control composite, SES and the interaction of the home and childcare chaos as predictors of the mixed models, in which the outcome variables were child social competence and adjustment.

As shown in both Table 8 and 9, no interactions between home and childcare chaos were found in predicting child outcomes, such as externalizing composite, $F(1, 210.29) = .12, p > .05$, teacher report of SC, $F(1, 191.07) = 1.84, p > .05$, and AW, $F(1, 196.84) = .09, p > .05$, mother report of internalizing problems, $F(1, 217.37) = .01, p > .05$, effortful control composite, $F(1, 203.80) = 2.48, p > .05$, DCCS, $F(1, 214.66) = .58, p > .05$, the percentage of frequency of anger, $F(1, 148.84) = .01, p > .05$, sadness, $F(1, 155.92) = 2.38, p > .05$, and positive expression, $F(1, 165) = 1.94, p > .05$, and the percentage of frequency of organized-on task behaviors, $F(1, 193.11) = .00, p > .05$.

As shown in the Table 8, there were significant main effects of home and childcare chaos. Home chaos had a significant and positive correlation with externalizing problems, $F(1, 217.19) = 9.82, p < .05$, and mother report of internalizing problems, $F(1, 216.70) = 4.51, p < .05$, over and above childcare chaos.

That is to say, as home chaos increased, children's behavioral problems also increased.

In addition, the variance in children's externalizing problems and teacher report of social competence was uniquely predicted by childcare chaos even after statistically controlling for home chaos, $F(1, 37.47) = 6.00, p < .05$ and $F(1, 41.70) = 8.29, p < .05$, respectively. As predicted, as childcare chaos increased, children's externalizing problems increased and their social competence decreased.

3.7 Supplemental analyses

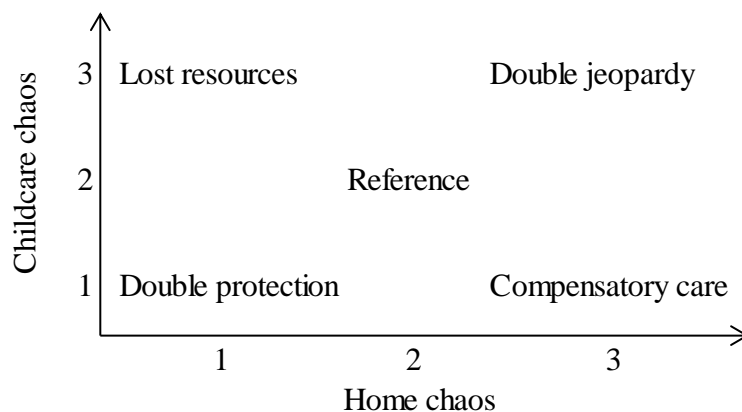
Given that we failed to detect any interaction of home chaos with childcare chaos, as an exploratory attempt, the additive and interactive role of home and childcare chaos in child development was investigated by creating five niche groups. Same with Watamura et al. (2011), niche groups were constituted based on triadic splits on the distribution of home and childcare chaos. Children who were going through the Double Jeopardy niche [termed by Watamura et al. (2011); scores in the top third for home and childcare chaos ratings], the Compensatory Care niche [termed by Watamura et al. (2011); scores in the top third for home chaos ratings and bottom third for childcare chaos ratings], the Double Protection niche [termed by Watamura et al. (2011); scores in the bottom third in both home and childcare chaos] and the Lost Resources niche [termed by Watamura et al. (2011); scores in the bottom third on the home chaos ratings and top third on the childcare chaos ratings] were compared to children in the Reference group [termed by Watamura et al. (2011); scores in the middle third for both home and childcare chaos ratings]. An illustration of niche groups was presented in Figure 1. In the present study, 19,6% ($n = 22$), 25% ($n = 28$), 15,2% ($n = 17$), 16,1% ($n = 18$), and 24,1% ($n = 27$) of the children could

be categorized as being exposed to Reference, Double Protection, Lost Resources, Compensatory Care and Double Jeopardy, respectively.

These supplemental multilevel analyses, in which the control variables were the same with previous models, indicated that niche groups predicted the externalizing composite score, $F(4, 68.05) = 3.77, p < .01$, and teacher report of social competence of children, $F(4, 68.10) = 2.55, p < .05$.

In detail, a pairwise comparison with Bonferroni adjustment showed children in the Double Jeopardy niche ($M = .397, SE = .14$) displayed more externalizing problems than children who exposed to Double Protection niche ($M = -.293, SE = .14$), with controls for effortful control composite and SES. Also, children in the Lost Resources niche ($M = 4.351, SE = .20$) were rated by teachers as displaying less social competence than those in the Reference group ($M = 5.185, SE = .19$), after effortful control composite and SES. Child effortful control composite remained a significant covariate in both models.

Figure 1. Niche groups



CHAPTER 4

DISCUSSION

Most research to date has investigated the role of home chaos and childcare chaos to predict children's developmental outcomes separately (Bratsch-Hines et al., 2015; Coldwell et al., 2006, Dumas et al., 2005, Petrill et al., 2004; Pike et al., 2006; Wachs et al., 2004). It was known little about whether home chaos correlated differentially with such developmental outcomes among children who expose to varying levels of childcare chaos. Therefore, in the present study, the additive and interactive roles of home and childcare chaos in predicting preschool children's social competence and adjustment, effortful control, and emotionality were investigated. In this chapter, the predictions made in the hypotheses will be evaluated and discussed in light of the relevant studies from the literature. Besides, limitations of the present study and contributions and implications for future studies will be included.

4.1. Additive relationships of home and childcare chaos in predicting child outcomes

4.1.1 Additive relationships of home and childcare chaos in predicting social competence and adjustment

It was hypothesized that home and childcare chaos would directly and independently correlate with preschool children's social competence and adjustment. In the present study, we relied on mother as well as teacher report of children's externalizing and internalizing symptoms, and teacher report of social competence. The results showed that after controlling for childcare chaos, child effortful control and SES, higher

home chaos was associated with higher externalizing problems and higher mother report of internalizing problems, supporting the hypothesis. As predicted, as home chaos increased, children's behavioral problems also increased over and above the childcare chaos. This finding is consistent with a large body of previous research that examined the role of home chaos in child social competence and adjustment (Coldwell et al., 2006; Deater-Deckard et al., 2009; Hardaway et al., 2012; Pike et al., 2006; Supplee et al., 2007; Valiente et al., 2007). Similar results were also found in a sample from Pakistan, having high levels of societal chaos at macro level (Shamama-tus-Sabah & Gillani, 2011).

The significant relationship between home chaos and adjustment outcomes can be explained through different routes. Firstly, indicators of chaos such as crowding, lack of routines, noise, and disorganization undermines the proximal processes such as less socially responsive, supportive and sensitive relationships between parents and children, which in turn, can lead to low levels of social adjustment (Bronfenbrenner & Evans, 2000; Evans et al., 1998; Matheny et al., 1995; Vernon-Feagans et al., 2012).

Secondly, similar explanations were also provided in the study by Forman and Davies (2003), in which the participants were younger adolescents. The study suggested that parenting difficulties and adolescents' appraisals of family insecurity mediated the association between the family instability, one of the important indicators of home chaos, and adjustment problems. In other words, they stated that high level of family instability predicts higher parenting difficulties. Parenting difficulties have an influence on adolescents' appraisal of family insecurity, which in turn, correlated positively with adolescents' behavioral problems.

Furthermore, another study (Valiente et al., 2007), which is in line with the finding of the present study showed that children's effortful control and parent's reactions mediated the association between the home chaos and externalizing problems. Also, they stated that home chaos interfere with the positive reactions of parents to negative emotions of their children. This decreased positive reactions also weaken children's effortful control, thereby increase externalizing problem behaviors (Valiente et al., 2007).

Relatively recent study by Hardaway et al. (2012) also underscored the importance of self-regulation as a mediator of the correlation between home chaos and externalizing problems among low-income children. In other words, home chaos leads to a decrease in self-regulatory skill, which in turn, lower self-regulatory skills correlated with higher externalizing problems.

On the other hand, contrary to our expectations, we failed to detect significant associations between home chaos and teacher report of anxiety-withdrawal and social competence. Although previous researches revealed that children who experience high level of home chaos were rated by their teacher as having more behavioral problems at school (Dumas et al., 2005; Evans et al., 1998; Shamama-tus-Sabah & Gillani, 2011), it is worthwhile to note that these studies focused on the socio-emotional outcomes concerning school-aged periods (e.g. Evans et al., 1998; Shamama-tus-Sabah & Gillani, 2011) or only one of the indicators of chaos such as crowding (Evans et al., 1998) or family instability and disorganization (Berry, Blair, Willoughby, Garrett-Peters, Vernon-Feagans, Mills-Koonce, & The Family Life Project Key Investigators, 2016) was used as a predictor. There is a relatively little research that examined the CHAOS scores as a measure of home chaos in relation to preschoolers' social adjustment and competence at school. One study (Dumas et al.,

2005) showed that high levels of chaos that was measured with CHAOS correlated with teacher report of internalizing problems. However, as they argued that these correlations were very small and might result from the sample size. Moreover, in a more recent study by Hur, Buettner, Cynthia and Jeon (2015) investigated the mediational role of home chaos for the association between parental depressive symptoms and school readiness of children. The results of the study indicated that home chaos, measured with CHAOS, correlated only with cognitive skills, mother report of social skills and behavioral self-regulations and it mediated only the link between parents' depressive symptoms and mother report of social skills (Hur et al., 2015). That is to say, they found that home chaos was not related with teacher report of child outcomes (Hur et al., 2015). Therefore, the non-significant correlations of the present study were consistent with the previous studies that also investigated the role of home chaos in preschoolers' social development by using CHAOS as a measure. So, the non-significant result can be explained by the reporter biases or the fact that behavioral functioning of children may differ across different contexts (Cai, Kaiser, & Hancock, 2004; Khabazian Hajiri, 2014; Uyanik, Simsek, & Akman, 2008; Verhulst & Akkerhuis, 1989).

Besides, even after statistically controlling for home chaos, child effortful control and SES, the variance in children's externalizing problems and teacher report of social competence was uniquely predicted by childcare chaos. Consistent with the predictions, as childcare chaos increased, children's externalizing problems increased and their social competence decreased.

This result was also consistent with previous studies that investigated the role of indicators of childcare chaos in child social adjustment and competence. Firstly, in the recent studies the significant role of childcare instability in predicting mother

report of externalizing behaviors (Pilarz & Hill, 2014), childcare provider report of social competence (Bratsch-Hines et al., 2013) and teacher ratings of social skills (Ansari & Winsler, 2013) was underscored. Secondly, as stated in the review of Corapci (2010), crowding in childcare settings also correlated negatively with the positive social behaviors and positively with externalizing problems after controlling the family variables. Moreover, children exposed to more organized classroom were rated as having fewer behavioral problems (Rutter, Maughan, Mortimore, Ouston, & Smith, 1979) and more social skills (Ferretti, 2014). Therefore, exploring the role of teacher report of childcare chaos in predicting social adjustment and development by using a measure that included all childcare chaos indicators was the important contribution of the present study.

Several explanations for the association between childcare chaos and children's social development can be suggested. First, teachers in the more chaotic childcare environment may be modeling fewer positive social skills and more ineffective management skills (Ferretti, 2014; Shamama-tus-Sabah & Gillani, 2011). In line with Social Learning Theory (Bandura, 1971), children, who observed these behaviors, were more likely to learn these ineffective management skills.

Second, Evans, Kliwer and Martin (1991) suggested the "overstimulation hypothesis" in which children were overwhelmed with too much stimulation due to the high levels of noise, which in turn, leads children to acquire strategies to filter out the unwanted stimulation (Evans et al., 1998; Evans, 2006). This filtering also results in the decrease in children's ability to be involved in joint-attentional activities and leads them to filter out developmentally valuable stimulation (Evans et al., 1991).

Furthermore, it was shown that exposure to chaotic home environment result in a decrease in the ability to understand and respond social cues (Dumas et al.,

2005). This explanation can be also used for the children who experiencing higher childcare chaos.

4.1.2 Additive relationships of home and childcare chaos in predicting effortful control

It was expected that home and childcare chaos would directly and independently correlate with preschool children's effortful control. The present study used both mother and teacher report of effortful control and observational data in order to create an effortful control composite. However, the analyses showed that while higher levels of home chaos predicted lower effortful control, after controlling for childcare chaos and SES, it was not associated with the effortful control composite. However, SES remained a significant covariate. Also, childcare chaos did not correlate with effortful control after controlling for home chaos and SES. These findings are contrary to previous researches that investigate the role of home and childcare chaos in inhibitory control and attentional mechanism (Belojevic et al., 2012; Evans & Lepore, 1993; Hambrick-Dixon, 1988; Hambrick-Dixon, 2002). One of the reasons for this inconsistency could be that these previous studies focused only one of the indicators of chaos, especially noise (Belojevic et al., 2012; Cohen et al., 1973; Evans & Lepore, 1993; Hambrick-Dixon, 1988; Hambrick-Dixon, 2002; Maxwell, 2010) and crowding (Evans, 2006; Evans & Lepore, 1993; Solari & Mare, 2012; Wachs & Gruen, 1982). While the study by Vernon-Feagans et al. (2012) showed the link between chaos and cognitive development by using multiple indicators of chaos, chaos was measured through objective measures rather than subjective ratings. It would be good to use objective measures in the present study at least in measuring childcare chaos.

4.2 Interactive roles of home and childcare chaos in predicting child outcomes

According to the interactive effects model, it was expected that the link between home chaos and child outcomes would be moderated by childcare chaos. Contrary to expectations, the two-way interaction term between the home and childcare chaos was not significant in predicting any of the child outcomes, such as externalizing composite, teacher report of SC and AW, mother report of internalizing problems, effortful control composite, DCCS, the percentage of frequency of anger, sadness and positive expression, and the percentage of frequency of organized-on task behaviors. Therefore, the pattern of the link between home chaos and child outcomes did not differ significantly by the chaos in the childcare context.

Although failing to explore the interaction between home and childcare chaos was consistent with the study by Maxwell (2003) in which there was also no significant interaction between crowding in both home and school setting, the finding was inconsistent with a large body of previous studies that found an interaction between environmental factors in two different settings (Crosnoe et al., 2010; Kamp Dush et al., 2013; Maxwell, 1996; Moore et al., 2000; Watamura et al., 2011). As noted in the Introduction, the most important reason for the non-significant interaction could be that children's experiences at home play the most prominent and largest role in children's optimal development for social and cognitive skills during preschool years (McCartney, 2006; NICHD Early Child Care Research Network, 2002b; 2003; 2006). This explanation could also be applied to the non-significant interaction between home and childcare chaos such that because of the prominent role of home chaos, childcare chaos did not moderate the negative correlations between home chaos and child social competence and adjustment.

4.3 Niche groups to predict child outcomes

In addition to examining the interactions between home and childcare chaos with continuous range, comparisons between children who experiencing the ends of the distribution of environmental chaos and children who experiencing average environmental chaos were made by creating niche groups in order to make a direct comparison. It was expected that children who were exposed to double jeopardy would display poorer social competence and adjustment than those who experiencing average environmental chaos. By showing that children in double jeopardy displayed more externalizing problems than children who exposed to double protection, as well as, children from less chaotic home environment, but more chaotic childcare environment displayed less social competence than those in reference group, the results of the present study partially supported the hypothesis of additive roles of home and childcare chaos. This finding was consistent with Sameroff (2000) which implied the importance of additive role of risky environment. However, because children who exposed to average home or childcare chaos were excluded, the sample size decreased from 269 to 112. Therefore, the results should be interpreted cautiously.

4.4 Limitations and future directions of the present study

This study has limitations that should be acknowledged. First, almost all children were enrolled in municipal preschools. If children enrolled in the different types of preschools were tested, a stronger generalization could be made and variability in childcare chaos would be increased. Second, comparing niche groups with a larger

sample size would be important for the comprehensive analyses and higher statistical power.

Furthermore, because the findings of the present study was relying only on mothers and teachers' subjective ratings of chaos, further investigation of the additive and interactive role of home and childcare chaos in child development should also be continued with the objective measures of home and childcare chaos. Besides, it would be better to examine the role home and childcare chaos in child development by creating a composite index for both home and childcare environment since the term of chaos has multiple indicators.

Moreover, the present study investigated only the role of home and childcare chaos in social and cognitive development. Further studies can examine the underlying mechanisms. For example, it would be good to examine whether children's temperament characteristics play a role in these associations. Also, child effortful control may moderate the relationship between environmental chaos and child outcomes. Specifically, further research should test whether home chaos was strongly related to social adjustment problems for children who have low effortful control level.

In addition, the findings of the present study did not show any significant associations between home chaos and teacher report of anxiety-withdrawal and social competence. Future studies should investigate whether there is a reporter bias or there are the underlying reasons for the non-significant results.

Also, the presence of assistant teachers might play a protective role for the relationship between childcare chaos and child developmental outcomes by decreasing the child-to-adult ratio. Future studies can statistically control this

variable in order to investigate the unique predictive role of childcare chaos in child outcomes.

Besides, we tried to explore the role of home and childcare chaos in child emotionality by examining affect display and behavioral regulation scores separately. But, further attempts may explore the link between chaos and child emotionality by combining them as in the study by Dennis, Hong and Solomon (2010).

Finally, longitudinal studies are needed to investigate the additive roles of the home and childcare chaos in both early childhood and middle childhood in order to examine whether there is a cumulative adverse role of environmental chaos on child outcomes over time.

4.5 Contributions and implications

Most research to date has addressed the role of home chaos and childcare chaos in children's socio-emotional and cognitive developmental outcomes separately. As a result, we know little whether home chaos is related differentially with such developmental outcomes among children who experience varying levels of childcare chaos. Therefore, the major contribution of the present study was to investigate the additive and interactive roles of home and childcare chaos in children's developmental outcomes. Because the increase in population, unhealthy urbanization, social issues, unemployment, mothers' participation in workforce, the need for the full-time non-parental care in Turkey might play a role in increasing levels of chaos in home and childcare microsystems, this type of consideration was also very important for Turkish policies.

Showing the positive relationship between environmental chaos and child social adjustment problems has also clinical implications. Because child

externalizing problems have an important role in the predisposition to adult violence (Betz, 1995), identifying chaos as a risk factor for these problems provides a significant step for the prevention programs. Increasing the competence and positive attitudes of parents and teachers by training programs and using less harsh discipline may help prevention of social adjustment problems. Also, teachers may give importance to support of children's self-concept (Spilt, Lier, Leflot, Onghena, & Colpin, 2014).

The use of multiple method and multiple reporters of social adjustment and competence (i.e., mother and teacher) and effortful control (i.e., mother, teacher, observers) reduced the subjectivity and shared method variance, and allowed for a more robust evaluation of child outcome variables by capturing them across different microsystems. For example, externalizing scores provided by the mothers had an association with the anger-aggression scores provided by the teachers. Also effortful control scores of CBQ-VSF provided by the mothers and teachers were related to the direct behavioral observations of effortful control.

The adaptation of LECP scale into Turkish and showing the satisfactory internal consistency of Turkish version in the present study made an important contribution by allowing for comprehensive, economical and brief measurement of childcare chaos.

The other contribution of the present study was that childcare chaos and poor childcare quality are two different concepts of childcare environment. In other words, childcare chaos plays a role in children's externalizing problems and teacher report of social competence over and above poor childcare quality. Also, although high levels of chaos are often associated with SES (Brody & Flor, 1997; Evans & English, 2002; Moore, 2000), consistent with previous researches (Deater-Deckard et al.,

2009; Dumas et al., 2005; Evans et al., 2005; Hart et al., 2007) the study contribute a support for that chaos correlates with adverse child outcomes over and above SES.

Finally, the findings of the present study about the additive role of risky settings suggest policies focusing on planning more effective prevention and interventions, especially for at-risk populations and integrating children's experiences at home into childcare environment (Crosnoe et al., 2010; NICHD ECCRN, 2005; Wasik et al., 1990).

APPENDIX A

TURKISH FORM OF CONFUSION, HUBBUB, AND ORDER SCALE

EVİM NASIL?

EVİNİZLE ilgili görüş, duygu ve düşüncenize en uygun olan seçeneği “Hiç Doğru Değil”den “Çok Doğru”ya giden 1 ile 6 arasındaki uygun gördüğünüz rakamı daire içine alarak belirtiniz.		Hiç Doğru Değil	Doğru Değil	Pek Doğru Değil	Biraz Doğru	Doğru	Çok Doğru				
Hiç Doğru değil	Doğru Değil	Pek Doğru Değil	Biraz Doğru	Doğru	Çok Doğru	Hiç Doğru Değil	Doğru Değil	Pek Doğru Değil	Biraz Doğru	Doğru	Çok Doğru
1	2	3	4	5	6	1	2	3	4	5	6
1.	Evimizde kargaşa ve dağınıklık çok az										
2.	Bir şeye ihtiyacımız olduğunda genellikle bulabiliriz.										
3.	Neredeyse her zaman bir telaş										
4.	Evimizde genellikle her şey yerli										
5.	Ne kadar uğraşırsak uğraşalım, genellikle hep geç kalırız.										
6.	Evimizde her zaman her şey altüst olur.										
7.	Evde birbirimizin sözünü kesmeden										
8.	Evimizde gürültü patırtı eksik olmaz.										
9.	Ailecek ne planlarsak planlayalım, genelde gerçekleştiremeyiz.										
10.	Bizim evde gürültüden kendi sesini bile duyamazsın.										
11.	Sıklıkla, evde başkalarının yaptığı tartışmalar içine ben de çekilirim.										
12.	Evimiz kafa dinlemek için iyi bir yerdir.										
13.	Evimizde telefon konuşması bitmek tükenmek bilmez.										
14.	Evimizde ortam sakindir.										
15.	Evimizde düzenli bir rutin vardır. Güne başlarken ne olacağı bellidir.										

APPENDIX B

TURKISH FORM OF FAMILY ROUTINES INVENTORY-SHORT FORM

HAFTAİÇİ GÜNLERDE NE SIKLIKTA....	HER GÜN	3-4 GÜN	1-2 GÜN	NERDEYSE HİÇ
1. çocuğunuza hikâye okursunuz veya anlatırsınız?				
2. çocuğunuzla oyun oynarsınız?				
3. çalışan ebeveyn(ler) aynı saatte işten eve gelir?				
4. akşam yemeğinizi aynı saatte yersiniz?				
5. çocuğunuz uyumak için aynı saatte yatağına gider?				
6. dua etmek, namaz kılmak, meditasyon yapmak veya dini kitap okumak gibi manevi etkinliklerde bulunursunuz?				

APPENDIX C

TURKISH FORM OF LIFE IN EARLY CHILDHOOD PROGRAMS SCALE

SINIFIM NASIL?

Sizin görüş, duygu ve düşüncenize en uygun olan seçeneği “Hiç Doğru Değil”den “Çok Doğru”ya giden 1 ile 6 arasındaki uygun gördüğünüz rakamı daire içine alarak belirtiniz.						
Hiç Doğru Değil 1	Doğru Değil 2	Pek Doğru Değil 3	Biraz Doğru 4	Doğru 5	Çok Doğru 6	
	Hiç Doğru Değil	Doğru Değil	Pek Doğru Değil	Biraz Doğru	Doğru	Çok Doğru
Sınıfımda kargaşa ve dağınıklık çok az olur.	1	2	3	4	5	6
Sınıfta neredeyse her zaman bir telaş içindeyiz.	1	2	3	4	5	6
Sınıftaki sorumluluklarımızı genellikle verilen sürede yerine getirebiliriz (örneğin, eğitim faaliyetlerinin planlanıp hazır hale getirilmesi ve uygulanması, ebeveynlerle iletişim vb.).	1	2	3	4	5	6
Ne kadar uğraşsak uğraşalım, genellikle hep geç kalırız (örneğin, planlanan bir etkinliği bitirmek, öğrencileri törene yetiştirmek vb.)	1	2	3	4	5	6
Sınıfımız karman çorman bir durumdadır, kimin ne yaptığı belli değildir.	1	2	3	4	5	6
Sınıf öğretmeni ve sınıftaki diğer çalışanlar, sözleri kesilmeden birbirleriyle ve çocuklarla konuşabilir.	1	2	3	4	5	6
Sınıfımız genellikle gürültülü olur.	1	2	3	4	5	6
Ne planlarsak planlayalım, genelde gerçekleştiremeyiz.	1	2	3	4	5	6
Sınıfta bir şeye ihtiyacımız olduğunda genellikle yerinde bulabiliriz.	1	2	3	4	5	6
Sınıfımızda gürültüden kendi sesimizi bile duyamadığımız olur.	1	2	3	4	5	6
Sınıfımız, çocukları rahat hissettiren bir yerdir.	1	2	3	4	5	6
Gün içerisinde düzeni bozan durumlar sınıf programını takip etmeyi zorlaştırır.	1	2	3	4	5	6
Sınıfımızda ortam sakindir.	1	2	3	4	5	6
Kullandığımız etkinlik materyallerini toplayıp yerine kaldırmak için nadiren zamanımız kalır ve bunlar gelişigüzel bir şekilde yığılır.	1	2	3	4	5	6
Mevcut alan göz önüne alındığında sınıfımızda çok fazla çocuk vardır.	1	2	3	4	5	6
Gün boyunca sınıfa giren ve çıkan yetişkin sayısı çok fazla olur.	1	2	3	4	5	6

APPENDIX D

TURKISH FORM OF CHILD BEHAVIOR CHECKLIST

1 ½ - 5 YAŞ ÇOCUKLARI İÇİN DAVRANIŞ DEĞERLENDİRME ÖLÇEĞİ

Aşağıda çocukların özelliklerini tanımlayan bir dizi madde bulunmaktadır. Her bir madde ÇOCUĞUNUZUN ŞU ANDAKİ YA DA SON 6 AY içindeki durumunu belirtmektedir. Bir madde çocuğunuz için çok ya da sıklıkla doğru ise 2, bazen ya da biraz doğru ise 1, hiç doğru değilse 0 sayılarını yuvarlak içine alınız. LÜTFEN TÜM MADDELERİ İŞARETLEMeye ÇALIŞINIZ.

0: Doğru Değil (Bildiğiniz kadarıyla) 1: Bazen ya da Biraz Doğru
2: ÇokyadaSıklıklaDoğru

- | | |
|--|--|
| 0 1 2 1. Ağrı ve sızıları vardır (tıbbi nedeni olmayan). | 0 1 2 13. Hasta değilken bile ishal olur, kakası yumuşaktır. |
| 0 1 2 2. Yaşından daha küçük gibi davranır. | 0 1 2 14. Söz dinlemez, kurallara uymaz. |
| 0 1 2 3. Başkalarıyla göz göze gelmekten kaçınır. | 0 1 2 15. Yaşam düzenindeki en ufak bir değişiklikten rahatsız olur. |
| 0 1 2 4. Dikkatini uzun süre toplamakta ya da sürdürmekte güçlük çeker. | 0 1 2 16. Kendisiyle konuşulduğunda yanıt vermez. |
| 0 1 2 5. Yerinde rahat oturamaz, huzursuz ve çok hareketlidir. | 0 1 2 17. İştahsızdır (açıklayınız)..... |
| 0 1 2 6. Eşyalarının yerinin değiştirilmesine katlanamaz. | |
| 0 1 2 7. Beklemeye tahammülü yoktur, her şeyin anında olmasını ister. | 0 1 2 18. Hatalı davranışından dolayı suçluluk duymaz. |
| 0 1 2 8. Yetişkinlerin dizinin dibinden ayrılmaz, onlara çok bağımlıdır. | 0 1 2 19. Güçlkle karşılaştığında çabuk vazgeçer. |
| 0 1 2 9. Kabızdır, kakasını kolay yapamaz (hasta değilken bile). | 0 1 2 20. Duyguları kolayca incinir. |
| 0 1 2 10. Karşı gelir. | 0 1 2 21. Çok kavga dövüş eder. |
| 0 1 2 11. İstekleri anında karşılanmalıdır. | 0 1 2 22. Anne-babasından ayrıldığında çok tedirgin olur. |
| 0 1 2 12. Ailesine ait eşyalara zarar verir. | 0 1 2 23. Baş ağrıları vardır (tıbbi nedeni olmayan). |
| | 0 1 2 24. Başkalarına vurur. |

- 0 1 2 25. Düşünmeden, insanlara ya da hayvanlara zarar verir.
- 0 1 2 26. Hiç bir neden yokken mutsuz görünür.
- 0 1 2 27. Öfkelidir.
- 0 1 2 28. Midesi bulanır, kendini hasta hisseder (tıbbi nedeni olmayan).
- 0 1 2 29. Bir yerleri seçir, tikleri vardır(açıklayınız).....
.....
.....
- 0 1 2 30. Sinirli ve gergindir.
- 0 1 2 31. Hiç bir neden yokken panik yaşar.
- 0 1 2 32. Kakasını yaparken ağrısı acısı olur.
- 0 1 2 33. Fiziksel olarak insanlara saldırır, onlara vurur.
- 0 1 2 34. Hareketlerinde tam kontrollü değildir, sakardır.
- 0 1 2 35. Cezadan anlamaz, ceza, davranışını değiştirmez.
- 0 1 2 36. Bir uğraş ya da faaliyeti bitirmeden diğerine çabuk geçer.
- 0 1 2 37. Hareketli, canlı oyunlar oynamayı reddeder.
- 0 1 2 38. Çok bağırır, çağırır, çılgın atar.
- 0 1 2 39. Sevgiye, şefkate tepkisiz görünür.
- 0 1 2 40. Sıkılgan ve utangaçtır.
- 0 1 2 41. Bencildir, paylaşmaz.
- 0 1 2 42. İnsanlara karşı çok az sevgi, şefkat gösterir.
- 0 1 2 43. Çevresindeki şeylere çok az ilgi gösterir.
- 0 1 2 44. Mide-karın ağrısı ve krampları vardır(tıbbi nedeni olmayan).
- 0 1 2 45. Üzgünken birden neşeli, neşeli iken birden üzgün olabilir.
- 0 1 2 46. İnatçı, somurtkan ve rahatsız edicidir.
- 0 1 2 47. Duyguları değişkendir, bir anı bir anını tutmaz.
- 0 1 2 48. Çok sık küser, surat asar, somurtur.
- 0 1 2 56. Alıp başını gider.
- 0 1 2 57. Çok ilgi ve dikkat ister.
- 0 1 2 58. Sızlanır, mızırdanır.
- 0 1 2 59. İçe kapanıktır, başkalarıyla birlikte olmak istemez.
- 0 1 2 60. Evhamlıdır.

APPENDIX E

TURKISH FORM OF SOCIAL COMPETENCE BEHAVIOR EVALUATION-
PRESCHOOL EDITION, SHORT FORM

SOSYAL YETKİNLİK VE DAVRANIŞ DEĞERLENDİRMESİ

Aşağıdaki listede bir çocuğun duygusal durumu ve davranışları ile ilgili ifadeler yer almaktadır. Verilen numaralandırma sistemini göz önünde bulundurarak ifadelerdeki davranışları öğrencinizde ne kadar sıklıkla gözlemlediğinizi işaretleyiniz: Bu davranışı HİÇBİR ZAMAN (1) BAZEN (2 veya 3) SIK SIK (4 veya 5) HER ZAMAN (6) gözlemliyorum.

	HİÇBİR ZAMAN ZAMAN 1	BAZEN 2 veya 3	SIKSIK 4 veya 5	HER 6
1. Yüz ifadesi duygularını belli etmez.	1	2 3	4 5	6
2. Zorda olan bir çocuğu teselli eder ya da ona yardımcı olur.	1	2 3	4 5	6
3. Kolaylıkla hayal kırıklığına uğrayıp sinirlenir.	1	2 3	4 5	6
4. Faaliyeti kesintiye uğradığında kızar.	1	2 3	4 5	6
5. Huysuzdur, çabuk kızıp öfkelenir.	1	2 3	4 5	6
6. Gündelik işlerde yardım eder (örneğin sınıf toplanırken ya da beslenme dağıtılırken yardımcı olur).	1	2 3	4 5	6
7. Çekingen, ürkektir; yeni ortamlardan ve durumlardan kaçınır.	1	2 3	4 5	6
8. Üzgün, mutsuz ya da depresiftir.	1	2 3	4 5	6
9. Grup içinde içe dönük ya da grupta olmaktan huzursuz görünür.	1	2 3	4 5	6
10. En ufak bir şeyde bağırır ya da çığlık atar.	1	2 3	4 5	6
11. Grup içinde kolaylıkla çalışır.	1	2 3	4 5	6
12. Hareketsizdir, oynayan çocukları uzaktan seyrederek.	1	2 3	4 5	6
13. Anlaşmazlıklara çözüm yolları arar.	1	2 3	4 5	6

14. Gruptan ayrı, kendi başına kalır.	1	2	3	4	5	6
15. Diğer çocukların görüşlerini dikkate alır.	1	2	3	4	5	6
16. Diğer çocuklara vurur, onları ısırır ya da tekmeler.	1	2	3	4	5	6
17. Grup faaliyetlerinde diğer çocuklarla birlikte çalışır, onlarla iş birliği yapar.	1	2	3	4	5	6
18. Diğer çocuklarla anlaşmazlığa düşer.	1	2	3	4	5	6
19. Yorgundur.	1	2	3	4	5	6
20. Oyuncaklara iyi bakar, oyuncakların kıymetini bilir.	1	2	3	4	5	6
21. Grup faaliyetleri sırasında konuşmaz ya da faaliyetlere katılmaz.	1	2	3	4	5	6
22. Kendinden küçük çocuklara karşı dikkatlidir.	1	2	3	4	5	6
23. Grup içinde fark edilmez.	1	2	3	4	5	6
24. Diğer çocukları istemedikleri şeyleri yapmaya zorlar.	1	2	3	4	5	6
25. Öğretmene kızdığı zaman ona vurur ya da çevresindeki eşyalara zarar verir.	1	2	3	4	5	6
26. Endişeye kapılır.	1	2	3	4	5	6
27. Akla yatan açıklamalar yapıldığında uzlaşmaya varır.	1	2	3	4	5	6
28. Öğretmenin önerilerine karşı çıkar.	1	2	3	4	5	6
29. Cezalandırıldığında (örneğin herhangi bir şeyden yoksun bırakıldığında) başkaldırır, karşı koyar.	1	2	3	4	5	6
30. Kendi başarılarından memnuniyet duyar.	1	2	3	4	5	6

APPENDIX F

TURKISH FORM OF CHILDREN'S BEHAVIOR QUESTIONNAIRE

VERY SHORT FORM

ÇOCUK DAVRANIŞ LİSTESİ

Son 6 ayı göz önünde bulundurarak, çocuğunuzun aşağıda tarif edilen bazı durumlar karşısında nasıl davrandığını en iyi gösteren sayıyı yuvarlak içine alarak belirtiniz. Doğru ya da yanlış cevap yoktur.

	Tamamen yanlış	Oldukça yanlış	Biraz yanlış	Ne doğru Ne yanlış	Biraz doğru	Oldukça doğru	Tamamen doğru
1. Bir yerden başka bir yere giderken her zaman çok aceleci ve telaşlıdır.	1	2	3	4	5	6	7
2. Yapmak istediği bir şeyden alıkonulduğunda hayal kırıklığı yaşar.	1	2	3	4	5	6	7
3. Resim yaparken ya da kitap boyarken çok iyi konsantre olup dikkatini yoğunlaştırır.	1	2	3	4	5	6	7
4. Yüksek kaydıraklardan kaymak gibi heyecan veren etkinliklerden hoşlanır.	1	2	3	4	5	6	7
5. Ufak bir kesik ya da yaralanmada bir hayli üzülür.	1	2	3	4	5	6	7
6. Gezmeye gitmeden önce ihtiyaç duyacağı şeyleri hazırlar.	1	2	3	4	5	6	7
7. Genellikle bir faaliyete aceleyle, düşünmeden girişir.	1	2	3	4	5	6	7
8. Ailesinin yaptığı planlar (örneğin, bir gezi planı) tasarlandığı gibi gerçekleşmezse üzülür.	1	2	3	4	5	6	7
9. Kendisine şarkı söylenilmesini sever.	1	2	3	4	5	6	7

10. Hemen hemen herkesin yanında rahattır.	1	2	3	4	5	6	7
11. Hırsız veya “öcü”lerden korkar.	1	2	3	4	5	6	7
12. Ebeveynleri yeni kıyafet giydiklerinde farkına varır.	1	2	3	4	5	6	7
13. Hareketli oyunlara kıyasla sakin etkinlikleri tercih eder.	1	2	3	4	5	6	7
14. Bir şeye sinirlendiğinde kızgınlığı en az 10 dakika sürer.	1	2	3	4	5	6	7
15. Parçaların üst üste konmasını veya eklenmesini gerektiren uğraşılara (lego gibi) kendini verir ve uzun süre çalışır.	1	2	3	4	5	6	7
16. Salıncakta sallanırken yükseğe çıkmayı ve hızı sever.	1	2	3	4	5	6	7
17. Bazı görevleri veya etkinlikleri başaramadığında üzülür.	1	2	3	4	5	6	7
18. Talimatları (Dur!, Geri gön!, Sağa dön! vb.) takip etmekte iyidir.	1	2	3	4	5	6	7
19. Yeni durumlara alışması uzun zaman alır.	1	2	3	4	5	6	7
20. Soğuk algınlığından hasta olduğunda pek nadiren mızızlanıp şikâyet eder.	1	2	3	4	5	6	7
21. Tekerlemelerde olduğu gibi ahenkli sesleri sever.	1	2	3	4	5	6	7
22. Uzun zamandır tanıdığı insanlar arasında bile bazen çekingendir.	1	2	3	4	5	6	7
23. Kızdığında sakinleştirilmesi çok zordur.	1	2	3	4	5	6	7

24. Evin odalarındaki yeni nesnelere hemen fark eder.	1	2	3	4	5	6	7
25. Akşamları bile enerji doludur.	1	2	3	4	5	6	7
26. Karanlıktan korkmaz.	1	2	3	4	5	6	7
27. Bazen resimli bir kitaba gömülür ve uzun süre bakar/okur.	1	2	3	4	5	6	7
28. Gürültülü, patırtılı, taşkınlık içeren oyunları sever.	1	2	3	4	5	6	7
29. Küçük kesik ve yaralara çok üzülmez.	1	2	3	4	5	6	7
30. Tehlikeli olduğu söylenen yerlere yavaş ve temkinli yaklaşır.	1	2	3	4	5	6	7
31. Ne yapacağına karar verirken yavaştır ve acele etmez.	1	2	3	4	5	6	7
32. Oynamak istediği şeyi bulamazsa kızar.	1	2	3	4	5	6	7
33. Sallanmak gibi sakin ritmik etkinliklerden hoşlanır.	1	2	3	4	5	6	7
34. Bazen yeni tanıştığı kişilerden utangaç bir şekilde kaçınır.	1	2	3	4	5	6	7
35. Ziyarete gelen sevdiği akrabalarının veya arkadaşlarının gitmeye hazırlanmaları, onu mutsuz eder.	1	2	3	4	5	6	7
36. Ebeveynin dış görünümünü değiştğinde (örneğin, yeni saç modeli) yorum getirir.	1	2	3	4	5	6	7
37. Genellikle bir faaliyete aceleyle, düşünmeden girer.	1	2	3	4	5	6	7
38. Başkaları konuşurken bazen sözlerini keser.	1	2	3	4	5	6	7

39. Ne istediğine çabucak karar verir ve yapmaya koyulur.	1	2	3	4	5	6	7
40. Bir şey yapmaya karar vermeden önce genellikle durup düşünür.	1	2	3	4	5	6	7
41. Dışarı çıkmaya hevesliyken, bazen heyecan ve telaşla üstüne uygun kıyafetleri (ör. palto) giymeden fırlar.	1	2	3	4	5	6	7
42. Durup düşünmeden aklına ilk geleni söyleme eğilimi vardır.	1	2	3	4	5	6	7
43. Canını acıtabileceği yerlerde temkinli davranır.	1	2	3	4	5	6	7
44. İsteddiği bir şeyi (ör. oyuncak) hemen elde etmek ister.	1	2	3	4	5	6	7
45. Yeni bir faaliyeti en son deneyen çocuklardan biridir.	1	2	3	4	5	6	7

APPENDIX G

TURKISH FORM OF CHILDREN'S BEHAVIOR QUESTIONNAIRE VERY SHORT FORM, TEACHER-REPORT VERSION

ÇOCUK DAVRANIŞ LİSTESİ

Son 6 ayı göz önünde bulundurarak, öğrencinizin aşağıda tarif edilen bazı durumlar karşısında nasıl davrandığını en iyi gösteren sayıyı yuvarlak içine alarak belirtiniz. Doğru ya da yanlış cevap yoktur.

	Tamamen yanlış	Oldukça yanlış	Biraz yanlış	Ne doğru Ne yanlış	Biraz doğru	Oldukça doğru	Tamamen doğru
1. Bir yerden başka bir yere giderken her zaman çok aceleci ve telaşlıdır.	1	2	3	4	5	6	7
2. Yapmak istediği bir şeyden alıkonulduğunda hayal kırıklığı yaşar.	1	2	3	4	5	6	7
3. Resim yaparken ya da kitap boyarken çok iyi konsantre olup dikkatini yoğunlaştırır.	1	2	3	4	5	6	7
4. Yüksek kaydıraklardan kaymak gibi heyecan veren etkinliklerden hoşlanır.	1	2	3	4	5	6	7
5. Ufak bir kesik ya da yaralanmada bir hayli üzülür.	1	2	3	4	5	6	7
6. Yeni aktivitelerden ya da rutinindeki değişikliklerden önce ihtiyaç duyacağı şeyleri hazırlar.	1	2	3	4	5	6	7
7. Genellikle bir faaliyete aceleyle, düşünmeden girer.	1	2	3	4	5	6	7
8. Öğretmenin yaptığı planlar (örneğin, bir gezi planı) tasarlandığı gibi gerçekleşmezse üzülür.	1	2	3	4	5	6	7
9. Kendisine şarkı söylenmesini sever.	1	2	3	4	5	6	7

10. Hemen hemen herkesin yanında rahattır.	1	2	3	4	5	6	7
11. Hırsız veya “öcü”lerden korkar.	1	2	3	4	5	6	7
12. Öğretmenin yeni veya farklı bir kıyafet giydiğinin farkına varır.	1	2	3	4	5	6	7
13. Hareketli oyunlara kıyasla sakin etkinlikleri tercih eder.	1	2	3	4	5	6	7
14. Bir şeye sinirlendiğinde kızgınlığı en az 10 dakika sürer.	1	2	3	4	5	6	7
15. Parçaların üst üste konmasını veya eklenmesini gerektiren uğraşlara (lego gibi) kendini verir ve uzun süre çalışır.	1	2	3	4	5	6	7
16. Salıncakta sallanırken yükseğe çıkmayı ve hızı sever.	1	2	3	4	5	6	7
17. Bazı görevleri veya etkinlikleri başaramadığında üzülür.	1	2	3	4	5	6	7
18. Talimatları (Dur!, Geri gön!, Sağa dön! vb.) takip etmekte iyidir.	1	2	3	4	5	6	7
19. Yeni durumlara alışması uzun zaman alır.	1	2	3	4	5	6	7
20. Soğuk algınlığından hasta olduğunda pek nadiren mızımızlanıp şikâyet eder.	1	2	3	4	5	6	7
21. Tekerlemelerde olduğu gibi ahenkli sesleri sever.	1	2	3	4	5	6	7
22. Uzun zamandır tanıdığı insanlar arasında bile bazen çekingendir.	1	2	3	4	5	6	7
23. Kızdığında sakinleştirilmesi çok zordur.	1	2	3	4	5	6	7

24. Sınıftaki yeni nesnelere hemen fark eder.	1	2	3	4	5	6	7
25. Sessiz aktivitelerin yapıldığı zamanlarda bile enerji doludur.	1	2	3	4	5	6	7
26. Karanlıktan korkmaz.	1	2	3	4	5	6	7
27. Bazen resimli bir kitaba gömülür ve uzun süre bakar/okur.	1	2	3	4	5	6	7
28. Gürültülü, patırtılı, taşkınlık içeren oyunları sever.	1	2	3	4	5	6	7
29. Küçük kesik ve yaralara çok üzülmez.	1	2	3	4	5	6	7
30. Tehlikeli olduğu söylenen yerlere yavaş ve temkinli yaklaşır.	1	2	3	4	5	6	7
31. Ne yapacağına karar verirken yavaştır ve acele etmez.	1	2	3	4	5	6	7
32. Oynamak istediği şeyi bulamazsa kızar.	1	2	3	4	5	6	7
33. Sallanmak gibi sakin ritmik etkinliklerden hoşlanır.	1	2	3	4	5	6	7
34. Bazen yeni tanıştığı kişilerden utangaç bir şekilde kaçınır.	1	2	3	4	5	6	7
35. Arkadaşlarının sınıftan ayrılmak için hazırlanmaları, onu mutsuz eder.	1	2	3	4	5	6	7
36. Öğretmeni dış görünümünü değiştirdiğinde yorum getirir.	1	2	3	4	5	6	7

APPENDIX H

CONSENT FORM FOR PRESCHOOL DIRECTORS

KATILIMCI BİLGİ VE ONAM FORMU

“Okul Öncesi Dönemde Çevre Koşulları ve Çocuk Gelişimi” adlı araştırma ile ilgili bilgileri okudum ve anladım. Anlamadığım kısımlar hakkında araştırmacıdan gerekli bilgileri aldım. Formun bir örneğini aldım.

Bu araştırma projesine katılmaya onay veriyorum

onay vermiyorum

Okul Öncesi Eğitim Kurumu Yöneticisinin Adı:

Tarih:

İmzası:

Telefon:

Adres:

APPENDIX I

CONSENT FORM FOR PARENTS

KATILIMCI BİLGİ VE ONAM FORMU

“Okul Öncesi Dönemde Çevre Koşulları ve Çocuk Gelişimi” adlı araştırma ile ilgili bilgileri okudum ve anladım. Anlamadığım kısımlar hakkında araştırmacıdan gerekli bilgileri aldım. Formun bir örneğini aldım.

Çocuğum _____ ’in bu araştırma projesine katılmasına

onay veriyorum

onay vermiyorum

Velinin Adı: _____

Tarih: _____

İmzası: _____

Telefon: _____

Adres: _____

Çocuğın Doğum Tarihi: _____

APPENDIX J

CONSENT FORM FOR PRESCHOOL TEACHERS

KATILIMCI BİLGİ VE ONAM FORMU

“Okul Öncesi Dönemde Çevre Koşulları ve Çocuk Gelişimi” adlı araştırma ile ilgili bilgileri okudum ve anladım. Anlamadığım kısımlar hakkında araştırmacıdan gerekli bilgileri aldım. Formun bir örneğini aldım.

Bu araştırma projesine katılmaya onay veriyorum

onay vermiyorum

Adı Soyadı:

Tarih:

İmzası:

Telefon:

E-posta:

Adres:

REFERENCES

- Abbott-Shim, M., & Sibley, A. (1987). *Assessment profile for early childhood programs*. Atlanta, GA: Quality Assist.
- Achenbach, T. M. (1991). *Integrative guide for the 1991 CBCL/4-18, YSR, and TRF profiles*. Department of Psychiatry, University of Vermont.
- Ackerman, B. P., & Brown, E. D. (2010). Physical and psychosocial turmoil in the home and cognitive development. In G. W. Evans, & T. D. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 35-47). Washington, D.C.: American Psychological Association.
- Ackerman, B. P., Kogos, J., Youngstrom, E., Schoff, K., & Izard, C. (1999). Family instability and the problem behaviors of children from economically disadvantaged families. *Developmental Psychology, 35*(1), 258-268.
- Adam, E. K., & Chase-Lansdale, P. L. (2002). Home sweet home (s): Parental separations, residential moves, and adjustment problems in low-income adolescent girls. *Developmental Psychology, 38*(5), 792-805.
- Ahnert, L., Pinquart, M., & Lamb, M. E. (2006). Security of children's relationships with nonparental care providers: A meta-analysis. *Child Development, 77*(3), 664-679.
- Aktan, O. & Akkutay, U. (2014). OECD Ülkelerinde ve Türkiye’de okul öncesi eğitim. *Asian Journal of Instruction, 2*(1), 64-79.
- Ansari, A., & Winsler, A. (2013). Stability and sequence of center-based and family child care: Links with low-income children's school readiness. *Children and Youth Services Review, 35*(2), 358–366.
- Arnett, J. (1989). Caregivers in day-care centers: Does training matter? *Journal of Applied Developmental Psychology, 10*(4), 541–552.
- Arnold, D. H., Zeljo, A., Doctoroff, G. L., & Ortiz, C. (2008). Parent involvement in preschool: Predictors and relation of involvement to preliteracy development. *School Psychology Review, 37*(1), 74–90.

- Arslan-Yalcin, D. (2009). *Turkish Validation of the Social Competence and Behavior Evaluation Scale (SCBE-30)* (Unpublished master thesis). Boğaziçi University, İstanbul.
- Asbury, K., Wachs, T. D., & Plomin, R. (2005). Environmental moderators of genetic influence on verbal and nonverbal abilities in early childhood. *Intelligence, 33*(6), 643-661.
- Atkins-Burnett, S., Nicholson, J., & Meisels, S. J. (1997). Assessing social competence in early childhood. In B. Spodek & O. N. Saracho (Eds.), *Yearbook In Early Childhood Education: Volume 7. Issues In Early Childhood Educational Assessment and Evaluation* (pp. 149-178). New York: Teachers College Press.
- Bandura, A. (1971). *Social learning theory*. Morristown, N.J.: General Learning Press.
- Barnett, W. S., Young, J. W., & Schweinhart, L. J. (1998). How preschool education influences long-term cognitive development and school success: A causal model. In W. S. Barnett & S. S. Boocock (Eds.), *Early care and education for children in poverty: Promises, programs and long-term results* (pp. 167–184). Albany, NY: SUNY.
- Batum, P., & Yagmurlu, B. (2007). What counts in externalizing behaviors? The contributions of emotion and behavior regulation. *Current Psychology, 25*(4), 272- 294.
- Behar, L., & Stringfield, S. (1974). A behavior rating scale for the preschool child. *Developmental Psychology, 10*(5), 601.
- Belojevic, G., Evans, G. W., Paunovic, K., & Jakovljevic, B. (2012). Traffic noise and executive functioning in urban primary school children: The moderating role of gender. *Journal of Environmental Psychology, 32*(4), 337–341.
- Belsky, J. (1997). Theory testing, effect-size evaluation, and differential susceptibility to rearing influence: the case of mothering and attachment. *Child Development, 68*(4), 598-600.
- Belsky, J. (2005). Differential susceptibility to rearing influences: An evolutionary hypothesis and some evidence. In B. Ellis & D. Bjorklund (Eds.), *Origins of*

the social mind: Evolutionary Psychology and Child Development (pp. 139–163). New York: Guilford.

- Belsky, J. (2001). Emanuel miller lecture—developmental risks (still) associated with early child care. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42(7), 845–859.
- Berry, D., Blair, C., Willoughby, M., Garrett-Peters, P., Vernon-Feagans, L., Mills-Koonce, W. R., & Family Life Project Key Investigators. (2016). Household chaos and children’s cognitive and socio-emotional development in early childhood: Does childcare play a buffering role?. *Early Childhood Research Quarterly*, 34, 115-127.
- Betz, C. L. (1995). Childhood violence: A nursing concern. *Issues in Comprehensive Pediatric Nursing*, 18(3), 149-161.
- Bialystok, E., & Martin, M. (2004). Attention and inhibition in bilingual children: evidence from the dimensional change card sorting task. *Developmental Science*, 7(3), 325–339.
- Bialystok, E., & Viswanathan, M. (2009). Components of executive control with advantages for bilingual children in two cultures. *Cognition*, 112(3), 494-500.
- Boyacioglu, A. B. (2016). *The Relationship between Maternal Employment Rate and Social Incentives in OECD Countries* (Unpublished master thesis). Georgetown University, Washington, DC.
- Bradley, R. H. (2010). From home to day care: chaos in the family/child care mesosystem. In G. W. Evans, & T. D. Wachs (Eds.), *Chaos and its influence on children’s development: An ecological perspective* (pp. 135-154). Washington, D.C.: American Psychological Association.
- Bratsch-Hines, M. E., Mokrova, I., Vernon-Feagans, L., & The Family Life Project Key Investigators. (2015). Child care instability from 6 to 36 months and the social adjustment of children in prekindergarten. *Early Childhood Research Quarterly*, 30(Part A), 106-116.
- Bratsch-Hines, M. E., Vernon-Feagans, L., & The Family Life Project Key Investigators. (2013). Child care changes, home environment quality, and the social competence of African American children at age 3. *Early Education & Development*, 24(8),1065–1081.

- Bridgett, D. J., Burt, N. M., Laake, L. M., & Oddi, K. B. (2013). Maternal self-regulation, relationship adjustment, and home chaos: Contributions to infant negative emotionality. *Infant Behavior and Development, 36*(4), 534-547.
- Brody, G. H., & Flor, D. L. (1997). Maternal psychological functioning, family processes, and child adjustment in rural, single-parent, African American families. *Developmental Psychology, 33*(6), 1000–1010.
- Bronfenbrenner, U. (1977). Towards an experimental ecology of human development. *American Psychologist, 32*(7), 513—531.
- Bronfenbrenner, U. (1979). Contexts of child rearing: Problems and prospects. *American Psychologist, 34*(10), 844.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*(6), 723.
- Bronfenbrenner, U. (1989). Ecological systems theory. *Annals of Child Development, 6*, 187–249.
- Bronfenbrenner, U. (2001). The bioecological theory of human development. In N. Smelser, & P. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (pp. 6963-6970). New York: Elsevier.
- Bronfenbrenner, U. (Ed.). (2005). *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks, CA: Sage.
- Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. *Social Development, 9*(1), 115-125.
- Bronfenbrenner, U., McClelland, P., Wethington, E., Moen, P., & Ceci, S. (1996). *The state of Americans: This generation and the next*. New York: Free Press.
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. *Handbook of Child Psychology, 1*, 993-1028.

- Budescu, M., & Taylor, R. D. (2013). Order in the home: Family routines moderate the impact of financial hardship. *Journal of Applied Developmental Psychology, 34*(2), 63-72.
- Bulotsky-Shearer, R. J., Wen, X., Faria, A. M., Hahs-Vaughn, D. L., & Korfmacher, J. (2012). National profiles of classroom quality and family involvement: A multilevel examination of proximal influences on Head Start children's school readiness. *Early Childhood Research Quarterly, 27*(4), 627-639.
- Burchinal, M. R., & Nelson, L. (2000). Family selection and child care experiences: Implications for studies of child outcomes. *Early Childhood Research Quarterly, 15*(3), 385-411.
- Burchinal, M. R., & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. *Early Childhood Research Quarterly, 18*(4), 401-426.
- Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. *Child Development, 67*(2), 606-620.
- Burchinal, M. R., Roberts, J. E., Riggins Jr, R., Zeisel, S. A., Neebe, E., & Bryant, D. (2000). Relating quality of center-based child care to early cognitive and language development longitudinally. *Child Development, 71*(2), 339-357.
- Burt, K. B., Obradovic, J., Long, J. D., & Masten, A. S. (2008). The interplay of social competence and psychopathology over 20 years: Testing transactional and cascade models. *Child Development, 79*(2), 359-374.
- Cai, X., Kaiser, A. P., & Hancock, T. B. (2004). Parent and teacher agreement on child behavior checklist items in a sample of preschoolers from low-income and predominantly African American families. *Journal of Clinical Child and Adolescent Psychology, 33*(2), 303-312.
- Caldwell, B. M. (1970). *Preschool inventory*. Distribution Services, Cooperative Tests and Services, Educational Testing Service.
- Caldwell, B. M., & Bradley, R. H. (1984). *Home Observation for Measurement of the Environment*. Little Rock, AR: University of Arkansas at Little Rock.

- Cárcamo, R. A., Vermeer, H. J., De la Harpe, C., van der Veer, R., & van IJzendoorn, M. H. (2014). The Quality of Childcare in Chile: Its Stability and International Ranking. In *Child & Youth Care Forum* (pp. 1-15). Springer US.
- Cavanagh, S. E., & Huston, A. C. (2008). The timing of family instability and children's social development. *Journal of Marriage and Family*, 70(5), 1258-1270.
- Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Burchinal, M., & Ramey, C. T. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology*, 37(2), 231-242.
- Campbell, F. A., & Ramey, C. T. (1994). Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families. *Child Development*, 65(2), 684-698.
- Chase-Lansdale, P. L., & Gordon, R. A. (1996). Economic Hardship and the Development of Five-and Six-Year-Olds: Neighborhood and Regional Perspectives. *Child Development*, 67(6), 3338-3367.
- Chen, N., Deater-Deckard, K., & Bell, M. A. (2014). The Role of Temperament by Family Environment Interactions in Child Maladjustment. *Journal of Abnormal Child Psychology*, 42(8), 1251-1262.
- Churchill, S. L., & Stoneman, Z. (2004). Correlates of family routines in Head Start families. *Early Childhood Research and Practice*, 6(1), 1-15.
- Clifford, R.M., Harms, T., Pepper, S., & Stuart, B. (1992). Assessing quality in family child care. In *Family day care: Current research for informed policy*. D. Peters and A. Pence, eds. New York: Teachers College Press.
- Clifford, R. M., Reszka, S. S., & Rossbach, H. G. (2010). *Reliability and validity of the early childhood environment rating scale* (Unpublished manuscript). Chapel Hill: University of North Carolina.
- Cohen, S., Glass, D. C., & Singer, J. E. (1973). Apartment noise, auditory discrimination, and reading ability in children. *Journal of Experimental Social Psychology*, 9(5), 407-422.

- Coldwell, J., Pike, A., & Dunn, J. (2006). Household chaos - links with parenting and child behaviour. *Journal of Child Psychology and Psychiatry*, 47(11), 1116-1122.
- Cole, P. M., Wiggins, C. N., Radzioch, A. M., & Pearl, A. M. (2007). *D.O.T.S. Emotion Coding System*. Department of Psychology, Pennsylvania State University.
- Cole, P. M., Zahn-Waxler, C., & Smith, K. D. (1994). Expressive control during a disappointment: Variations related to preschoolers' behavior problems. *Developmental Psychology*, 30(6), 835-846.
- Collins, W. A., Maccoby, E. E., Steinberg, L., Hetherington, E. M., & Bornstein, M. H. (2000). Contemporary research on parenting: The case for nature and nurture. *American Psychologist*, 55(2), 218-232.
- Cooper, C.E., Osborne, C.A., Beck, A.N., & McLanahan, S. (2008). *Partnership instability and child wellbeing during the transition to elementary school* (Working Paper No. 2007-16-FF). Princeton, NJ: Princeton University. Center for Research on Child Wellbeing
- Corapci, F. (2010). Childcare chaos and child development. In G. W. Evans, & T. D. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 67-82). Washington, D.C.: American Psychological Association.
- Corapci, F., Aksan, N., Arslan-Yalcin, D., & Yagmurlu, B. (2010). The psychometric evaluation of the social competence and behavior evaluation scale with Turkish preschoolers. *Turkish Journal of Child and Adolescent Mental Health*, 17(2), 3-14.
- Corapci, F., & Wachs, T. D. (2002). Does parental mood or efficacy mediate the influence of environmental chaos upon parenting behavior? *Merrill-Palmer Quarterly*, 48(2), 182-201.
- Crosnoe, R., Leventhal, T., Wirth, R. J., Pierce, K. M., & Pianta, R. C. (2010). Family socioeconomic status and consistent environmental stimulation in early childhood. *Child Development*, 81(3), 972-987.

- De Schipper, J. C., Tavecchio, L. W., Van IJzendoorn, M. H., & Linting, M. (2003). The relation of flexible child care to quality of center day care and children's socio-emotional functioning: A survey and observational study. *Infant Behavior and Development, 26*(3), 300-325.
- De Schipper, J. C., Tavecchio, L. W., Van IJzendoorn, M. H., & Van Zeijl, J. (2004). Goodness-of-fit in center day care: Relations of temperament, stability, and quality of care with the child's adjustment. *Early Childhood Research Quarterly, 19*(2), 257-272.
- Deater-Deckard, K., Mullineaux, P. Y., Beekman, C., Petrill, S. A., Schatschneider, C., & Thompson, L. A. (2009). Conduct problems, IQ, and household chaos: A longitudinal multi-informant study. *Journal of Child Psychology and Psychiatry, 50*(10), 1301-1308.
- Denham, S. (1986). Social cognition, prosocial behavior, and emotion in preschoolers: Contextual validation. *Child Development, 57*, 194-201.
- Dennis, T. A., Hong, M., & Solomon, B. (2010). Do the associations between exuberance and emotion regulation depend on effortful control?. *International Journal of Behavioral Development, 34*(5), 462-472.
- Deutsch, C. P. (1964). Auditory discrimination and learning: Social factors. *Merrill-Palmer Quarterly of Behavior and Development, 10*(3), 277-296.
- Diamond, A. (2006). The early development of executive functions. In E. Bialystok, & F. I. M. Craik (Eds.), *Lifespan cognition: Mechanisms of change* (pp. 70-95). New York: Oxford University Press.
- Diamond, A., & Taylor, C. (1996). Development of an aspect of executive control: Development of the abilities to remember what I said and to "Do as I say, not as I do." *Developmental Psychobiology, 29*(4), 315-334.
- Dumas, J. E., Nissley, J., Nordstrom, A., Smith, E. P., Prinz, R. J., & Levine, D.W. (2005). Home chaos: sociodemographic, parenting, interactional, and child correlates. *Journal of Clinical Child and Adolescent Psychology, 34*(1), 93-104.
- Dumenci, L., Erol, N., Achenbach, T. M., & Simsek, Z. (2004). Measurement structure of the Turkish translation of the Child Behavior Checklist using

confirmatory factor analytic approaches to validation of syndromal constructs. *Journal of Abnormal Child Psychology*, 32(3), 335-340.

Duncan, G. J., Brooks-Gunn, J., & Klebanov, P. K. (1994). Economic deprivation and early childhood development. *Child Development*, 65(2), 296-318.

Erol, N., Simsek, Z., Oner, O., Munir, K. (2005). Behavioral and emotional problems among Turkish children at ages 2 to 3 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44(1), 80-87.

Evans, G. W. (2001). Environmental stress and health. In A. Baum, T. Revenson, & J. E. Singer (Eds.), *Handbook of health psychology* (pp. 365-385). Mahwah, NJ: LEA.

Evans, G. W. (2006). Child development and the physical environment. *Annual Review of Psychology*, 57, 423-451.

Evans, G. W., Bullinger, M., & Hygge, S. (1998). Chronic noise exposure and physiological response: A prospective study of children living under environmental stress. *Psychological Science*, 9(1), 75-77.

Evans, G. W., & English, K. (2002). The environment of poverty: Multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Development*, 73(4), 1238-1248.

Evans, G. W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children's socioemotional adjustment. *Psychological Science*, 16(7), 560-565.

Evans, G. W., Hygge, S., & Bullinger, M. (1995). Chronic noise and psychological stress. *Psychological Science*, 6, 333-338.

Evans, G. W., Kliewer, W., & Martin, J. (1991). The role of the Physical environment in the health and well-being of children. In H. E. Schroeder (Ed.), *New Directions in Health Psychology Assessment* (pp. 127-157). New York: Hemisphere

Evans, G. W., & Lepore, S. J. (1993). Nonauditory effects of noise on children: A critical review. *Children's Environments*, 10, 31-51.

- Evans, G. W., Lepore, S. J., Shejwal, B. R., & Palsane, M. N. (1998). Chronic residential crowding and children's well-being: an ecological perspective. *Child Development, 69*(6), 1514-1523.
- Evans, G. W., Maxwell, L. E., & Hart, B. (1999). Parental language and verbal responsiveness to children in crowded homes. *Developmental Psychology, 35*(4), 1020-1023.
- Evans, G.W., Saegert, S., & Harris, R. (2001). Residential density and psychological health among children in low-income families. *Environment and Behavior, 33*(2), 165–180.
- Evans, G. W., & Stecker, R. (2004). Motivational consequences of environmental stress. *Journal of Environmental Psychology, 24*(2), 143-165.
- Evans, G. W., & Wachs, T. D. (Eds.). (2010). *Chaos and its influence on children's development: An ecological perspective*. Washington, DC: American Psychological Association.
- Fantuzzo, J., McWayne, C., Perry, M. A., & Childs, S. (2004). Multiple dimensions of family involvement and their relations to behavioral and learning competencies for urban, low-income children. *School Psychology Review, 33*(4), 467–480.
- Fantuzzo, J. W., Tighe, E., McWayne, C. M., Davis, G., & Childs, S. (2002). Parent involvement in early childhood education and children's peer play competencies: An examination of multivariate relationships. *NHSA Dialog: A Research-to-Practice Journal for the Early Intervention Field, 6*(1), 3–21.
- Ferretti, L. K. (2014). *Environmental Structure: Contributions of Family Routines and Classroom Organization to the Social and Academic Development of Low-Income Kindergarteners* (Doctoral dissertation). Auburn University, Auburn.
- Ferretti, L. K., & Bub, K. L. (2014). The influence of family routines on the resilience of low-income preschoolers. *Journal of Applied Developmental Psychology, 35*(3), 168-180.
- Field, A. (2012). *Discovering statistics using IBM SPSS statistics* (3rd ed.). London: Sage.

- Fiese, B. H., & Winter, M. A. (2010). The dynamics of family chaos and its relation to children's socioemotional well-being. In G. W. Evans, & T. D. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 49-66). Washington, D.C.: American Psychological Association.
- Fomby, P., & Cherlin, A. J. (2007). Family instability and child well-being. *American Sociological Review*, *72*(2), 181-204.
- Forman, E. M., & Davies, P. T. (2003). Family instability and young adolescent maladjustment: The mediating effects of parenting quality and adolescent appraisals of family security. *Journal of Clinical Child and Adolescent Psychology*, *32*(1), 94-105.
- Freeman, R. (2011). Home, school partnerships in family child care: Providers' relationships within their communities. *Early Child Development and Care*, *181*(6), 827-845.
- Friedman, S., & Amadeo, J. (1999). The child care environment: Conceptualizations, assessments, and issues. In S.L. Friedman & T.D. Wachs (Eds.), *Measuring environment across the lifespan* (pp. 127-165). Washington, DC: American Psychological Association.
- Gaertner, B. M. (2012). *The Relations of Household Chaos to Children's Language Development: The Mediating Roles of Children's Effortful Control and Parenting* (Unpublished doctoral dissertation). Arizona State University, AZ.
- Garner, P.W. (1996). The relations of emotional role taking, affective/moral attributions and emotional display rule knowledge to low-income school-age children's social competence. *Journal of Applied Developmental Psychology*, *17*(1), 19-36.
- Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(11), 1337-1345.
- Hambrick-Dixon, P. (1988). The effect of elevated subway train noise over time on Black children's visual vigilance performance. *Journal of Environmental Psychology*, *8*(4), 299-314.

- Hambrick-Dixon, P. J. (2002). The effects of exposure to physical environmental stressors on African American children: A review and research agenda. *Journal of Children and Poverty*, 8(1), 23-34.
- Hanscombe, K. B., Haworth, C., Davis, O. S., Jaffee, S. R., & Plomin, R. (2010). The nature (and nurture) of children's perceptions of family chaos. *Learning and Individual Differences*, 20(5), 549-553.
- Hardaway, C. R., Wilson, M. N., Shaw, D. S., & Dishion, T. J. (2012). Family functioning and externalizing behaviour among low-income children: Self-regulation as a mediator. *Infant and Child Development*, 21(1), 67-84.
- Hart, S. A., Petrill, S. A., Deckard, K. D., & Thompson, L. A. (2007). SES and CHAOS as environmental mediators of cognitive ability: A longitudinal genetic analysis. *Intelligence*, 35(3), 233-242.
- Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore: Paul H Brookes.
- Heft, H. (1979). Background and Focal Environmental Conditions of the Home and Attention in Young Children. *Journal of Applied Social Psychology*, 9(1), 47-69.
- Helburn, S. W., & Howes, C. (1996). Child care cost and quality. *The Future of Children*, 6(2), 62-82.
- Hill, N. E., & Craft, S. (2003). Parent-school involvement and school performance: Mediated pathways among socioeconomically comparable African American and Euro-American families. *Journal of Educational Psychology*, 95(1), 74-83.
- Hiramatsu, K., Tokuyama, T., Matsui, T., Miyakita, T., Osada, Y., & Yamamoto, T. (2004). The Okinawa Study: Effect of chronic aircraft noise exposure on memory of school children. *Proceedings of the 8th International Congress on Noise as a Public Health Problem* (pp. 179-180). Schiadam, The Netherlands.
- Howe, G. W. (2002). Integrating family routines and rituals with other family research paradigms: Comment on the special section. *Journal of Family Psychology*, 16(4), 437-440.

- Howes, C., & Hamilton, C. E. (1993). The changing experience of child care: Changes in teachers and in teacher-child relationships and children's social competence with peers. *Early Childhood Research Quarterly*, 8(1), 15-32.
- Howes, C. & James, J. (2002). Children's social development within the socialization context of childcare and early childhood education. In Smith, P. K., & Hart. C. H. (Eds.), *Blackwell handbook of childhood social development* (pp. 137-155). Oxford, UK: Blackwell Publishers.
- Hughes, C., & Ensor, R. (2008). Does executive function matter for preschoolers' problem behaviors. *Journal of Abnormal Child Psychology*, 36(1), 1-14.
- Hur, E., Buettner, C. K., & Jeon, L. (2015). Parental depressive symptoms and children's school-readiness: the indirect effect of household chaos. *Journal of Child and Family Studies*, 24(11), 3462-3473.
- Hygge, S. (1993). Classroom experiments on the effects of aircraft, traffic, train and verbal noise on long-term recall and recognition in children aged 12-14 years. In M. Vallet (Ed.), *Proceedings of the Sixth International Conference on Noise as a Public Health Problem* (Vol. 2, pp. 531-538). Nice, France: Institut National de Recherche sur les Transport et leur Sécurité, Bron.
- IBM Corp. (2010). IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp.
- Jensen, E. W, James, S. A., Boyce, W.T., & Hartnett, S. A. (1983). The Family Routines Inventory: Development and validation. *Social Science and Medicine*, 17(4), 201-211.
- Kamp Dush, C. M., Schmeer, K. K., & Taylor, M. (2013). Chaos as a social determinant of child health: Reciprocal associations?. *Social Science & Medicine*, 95, 69-76.
- Kelly, B. M., Schwartz, D., Gorman, A.H., & Nakamoto, J. (2008). Violent victimization in the community and children's subsequent peer rejection: The mediating role of emotion dysregulation. *Journal of Abnormal Child Psychology*, 36(2), 175-185.

- Keltner, B. (1990). Family characteristics of preschool social competence among Black children in a Head Start program. *Child Psychiatry and Human Development, 21*(2), 95–108.
- Khabazian Hajiri, N. (2014). *Hvilket faktorer fører til at barn og ungdom med ikke vestlig bakgrunn er mer utsatt for å få psykiske plager i Norge?*. Universitet i Oslo.
- Koblinsky, S. A., Kuvalanka, K. A., & Randolph, S. M. (2006). Social skills and behavior problems of urban, African American preschoolers: Role of parenting practices, family conflict, and maternal depression. *American Journal of Orthopsychiatry, 76*(4), 554–563.
- Kochanska, G., & Coy, K. C. (2002). Child emotionality and maternal responsiveness as predictors of reunion behaviors in the strange situation: Links mediated and unmediated by separation distress. *Child Development, 73*(1), 228-240.
- Kochanska, G., Murray, K., & Harlan, E. T. (2000). Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology, 36*(2), 220–232.
- Kochanska, G., Murray, K., Jacques, T. Y., Koenig, A. L., & Vandegest, K. A. (1996). Inhibitory control in young children and its role in emerging internalization. *Child Development, 67*, 490-507.
- Kontos, S., & Wachs, T. D. (2000). *Life in Early Childhood Programs Scale* (Unpublished manuscript). Department of Child Development and Family Studies. Purdue University. West Lafayette, IN.
- Ladd, G. W. (2006). Peer rejection, aggressive or withdrawn behavior, and psychological maladjustment from ages 5 to 12: An examination of four predictive models. *Child Development, 77*(4), 822-846.
- Ladd, G., & Troop-Gordon, W. (2003). The role of chronic peer difficulties in the development of children's psychological adjustment problems. *Child Development, 74*(5), 1344-1367.
- LaFreniere, P. J., & Dumas, J. E. (1996). Social competence and behavior evaluation in children ages 3 to 6 years: The short form (SCBE-30). *Psychological Assessment, 8*(4), 369-377.

- Lamb, M. E. (1998). Nonparental child care: Context, quality, correlates, and consequences. In W. Damon (Series Ed.) I. E. Sigel & K. A. Renninger (Vol. Eds.), *Handbook of child psychology. Vol. 4. Child psychology in practice* (5th ed., pp. 73 – 133). New York: Wiley.
- Lamb, M. E., & Ahnert, L. (2006). Nonparental child care: context, concepts, correlates, and consequences. In W. Damon & R. M. Lerner (Series Eds.) & K. A. Renninger & I. E. Sigel (Vol. Eds.), *Handbook of child psychology: Vol. 4. Child psychology in practice* (6th ed., pp. 950-1016). New York: Wiley.
- Lambert, R., Abbott-Shim, M., & Sibley, A. (2005). Evaluating the quality of early childhood educational settings. In B. Spodek, & O. Saracho (Eds.), *Handbook of research on the education of young children* (2nd ed., pp. 457–475). Mahwah, NJ: Erlbaum.
- Lanza, H. I., & Drabick, D. A. G. (2011). Family routine moderates the relation between child impulsivity and oppositional defiant disorder symptoms. *Journal of Abnormal Child Psychology*, 39(1), 83–94.
- Leerkes, E. M., Paradise, M., O'Brien, M., Calkins, S. D., & Lange, G. (2008). Emotion and cognition processes in preschool children. *Merrill-Palmer Quarterly*, 54(1), 102-124.
- Legendre, A. (2003). Environmental features influencing toddlers' bioemotional reactions in day care centers. *Environment and Behavior*, 35(4), 523-549.
- Lichter, D. T., & Wethington, E. (2010). Chaos and the diverging fortunes of American children: A historical perspective. In G. W. Evans, & T. D. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 15-32). Washington, D.C.: American Psychological Association.
- Linting, M., Groeneveld, M. G., Vermeer, H. J., & van IJzendoorn, M. H. (2013). Threshold for noise in daycare: Noise level and noise variability are associated with child wellbeing in home-based childcare. *Early Childhood Research Quarterly*, 28(4), 960-971.
- Love, J. M., Harrison, L., Sagi-Schwartz, A., Van IJzendoorn, M. H., Ross, C., Ungerer, J. A., ... & Chazan-Cohen, R. (2003). Child care quality matters:

How conclusions may vary with context. *Child Development*, 74(4), 1021-1033.

Luria, A. R. (1966). *The higher cortical functions in man*. New York: Basic Books.

Manlove, E. E., Frank, T., & Vernon-Feagans, L. (2001). Why should we care about noise in classrooms and child care settings?. In *Child and Youth Care Forum* (Vol. 30, No. 1, pp. 55-64). Kluwer Academic Publishers-Plenum Publishers.

Marcynyszyn, L. A., Evans, G.W., & Eckenrode, J. (2008). Family instability during early and middle adolescence. *Journal of Applied Developmental Psychology*, 29(5), 380-392.

Marshall, N. L. (2004). The quality of early child care and children's development. *Current Directions in Psychological Science*, 13(4), 165-168.

Martin, A., Razza, R. A., & Brooks-Gunn, J. (2012). Specifying the links between household chaos and preschool children's development. *Early Child Development and Care*, 182(10), 1247-1263.

Mashburn, A. J. (2008). Quality of social and physical environments in preschools and children's development of academic, language, and literacy skills. *Applied Developmental Science*, 12(3), 113-127.

Matheny Jr, A. P., & Phillips, K. (2001). Temperament and context: Correlates of home environment with temperament continuity and change, newborn to 30 months. In T. D. Wachs & G. Kohnstamm (Eds.), *Temperament in context* (pp. 81-102). Mahwah, NJ: Erlbaum.

Matheny Jr, A. P., Wachs, T. D., Ludwig, J. L., & Phillips, K. (1995). Bringing order out of chaos: Psychometric characteristics of the confusion, hubbub, and order scale. *Journal of Applied Developmental Psychology*, 16(3), 429-444.

Maxwell, L. E. (1996). Multiple effects of home and day care crowding. *Environment and Behavior*, 28(4), 494-511.

Maxwell, L. E. (2003). Home and school density effects on elementary school children the role of spatial density. *Environment and Behavior*, 35(4), 566-578.

- Maxwell, L. E. (2010). Chaos outside the home: The school environment. In G. W. Evans, & T. D. Wachs (Eds.), *Chaos and its influence on children's development: An ecological perspective* (pp. 83-95). Washington, D.C.: American Psychological Association.
- Maxwell, L. E., & Evans, G. W. (2000). The effects of noise on pre-school children's pre-reading skills. *Journal of Environmental Psychology, 20*(1), 91-97.
- McCartney, K. (2006). The Family-Child Care Mesosystem. In A. Clarke-Stewart & J. Dunn (Eds.), *Families Count: Effects on child and adolescent development* (pp. 155-175). Cambridge: Cambridge University Press.
- McCartney, K. (2010). *Why the environment matters more for children in poverty*. In Plenary presentation at Head Start's 10th National Research Conference Washington, DC.
- McCartney, K., Dearing, E., & Taylor, B. A. (2003). *Is high-quality child care an intervention for children living in poverty?* In Poster presented at the biennial meeting of the Society for Research in Child Development, Tampa, FL.
- Metcalf, J., & Mischel, W. (1999). A hot/cool system analysis of delay of gratification: Dynamics of willpower. *Psychological Review, 106*(1), 3-19.
- Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis. *Cognitive Psychology, 41*(1), 49-100.
- Moore, K. A., Vandivere, S., & Ehrle, J. (2000). Sociodemographic risk and child wellbeing. In T. U. Institute (Ed.), *New federalism: National survey of America's families*. Washington, D.C.: The Urban Institute.
- Morrissey, T. W. (2010). Sequence of child care type and child development: What role does peer exposure play?. *Early Childhood Research Quarterly, 25*(1), 33-50.
- NICHD Early Child Care Research Network. (1996). Characteristics of infant child care: Factors contributing to positive caregiving. *Early Childhood Research Quarterly, 1*, 269-306.

- NICHD Early Child Care Research Network. (1997). The effects of infant child care on infant-mother attachment security: Results of the NICHD Study of Early Child Care. *Child Development, 68*, 860-879.
- NICHD Early Child Care Research Network (1998). Early child care and self-control, compliance, and problem behavior at 24 and 36 months. *Child Development, 69*, 1145–1170.
- NICHD Early Child Care Research Network (2000a). Characteristics and quality of child care for toddlers and preschoolers. *Applied Development Science, 4*, 116-135.
- NICHD Early Child Care Research Network. (2000b). The relation of child care to cognitive and language development. *Child Development, 71*, 960-980.
- NICHD Early Child Care Research Network. (2002a). Child care structure→ process→ outcome: Direct and indirect effects of child care quality on young children's development. *Psychological Science, 13*(3), 199-206.
- NICHD Early Child Care Research Network. (2002b). Early child care and children's development prior to school entry: Results from the NICHD Study of Early Child Care. *American Educational Research Journal, 39*(1), 133–164.
- NICHD Early Child Care Research Network. (2003). Social functioning in first grade: Associations with earlier home and child care predictors and with current classroom experiences. *Child Development, 74*, 1639–1662.
- NICHD Early Child Care Research Network. (2005). Early child care and children's development in the primary grades. *American Educational Research Journal, 43*, 537–570.
- NICHD Early Child Care Research Network. (2006). Child care effect sizes for the NICHD study of early child care and youth development. *American Psychologist, 61*(2), 99–116.
- Paunovic, K., Belojevic, G., Jakovljevic, B., Stojanov, V., & Ilic, J. (2009). The effects of road traffic noise on blood pressure of children aged 7–11 in Belgrade. *Eighth International European Congress on Noise Control* (pp. 47–48). Edinburgh.

- Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., Yazejian, N., Byler, P., & Rustici, J. (1999). *The children of the cost, quality and outcomes study go to school: Executive summary*. Chapel Hill: Frank Porter Graham Child Development Center, University of North Carolina.
- Peisner-Feinberg, E.S., Burchinal, M.R., Clifford, R.M., Culkin, M.L., Howes, C., Kagan, S.L., Yazejian, N., Byler, P., Rustici, J., Zelazo, J. (2000). *The children of the cost, quality, and outcomes study go to school: Technical report*. Chapel Hill: University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Center.
- Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., & Kagan, S. L. (2001). The relation of preschool child care quality to children's cognitive and social developmental trajectories through second grade. *Child Development, 72*(5), 1534–1553.
- Peters-Martin, P., & Wachs, T. D. (1984). A longitudinal study of temperament and its correlates in the first 12 months. *Infant Behavior and Development, 7*(3), 285-298.
- Petrill, S. A., Pike, A., Price, T., & Plomin, R. (2004). Chaos in the home and socioeconomic status are associated with cognitive development in early childhood: Environmental mediators identified in a genetic design. *Intelligence, 32*(5), 445-460.
- Phillips, D. A., & Lowenstein, A. E. (2011). Early care, education, and child development. *Annual Review of Psychology, 62*(1), 483-500.
- Phillips, D., McCartney, K., & Scarr, S. (1987). Child care quality and children's social development. *Developmental Psychology, 23*(4), 537.
- Phillips, D., McCartney, K., & Sussman, A. (2006). Child care and early development. In K. McCartney & D. Phillips (Eds.), *The handbook of early childhood development* (pp. 471–489). New York: Blackwell.
- Pike, A., Iervolino, A. C., Eley, T. C., Price, T. S., & Plomin, R. (2006). Environmental risk and young children's cognitive and behavioral development. *International Journal of Behavioral Development, 30*(1), 55-66.

- Pilarz, A. R., & Hill, H. D. (2014). Unstable and multiple child care arrangements and young children's behavior. *Early Childhood Research Quarterly, 29*(4), 471–483.
- Pinto, A. I., Pessanha, M., & Aguiar, C. (2013). Effects of home environment and center-based child care quality on children's language, communication, and literacy outcomes. *Early Childhood Research Quarterly, 28*(1), 94-101.
- Putnam, S. P., & Rothbart, M. K. (2006). Development of short and very short forms of the Children's Behavior Questionnaire. *Journal of Personality assessment, 87*(1), 102-112.
- Raver, C. C., & Zigler, E. F. (1997). Social competence: An untapped dimension inevaluating Head Start's success. *Early Childhood Research Quarterly, 12*(4), 363-385.
- Razza, R. A., & Blair, C. (2009). Associations among false-belief understanding, executive function, and social competence: A longitudinal analysis. *Journal of Applied Developmental Psychology, 30*(3), 332-343.
- Romano, E., Kohen, D., & Findlay, L. C. (2010). Associations among child care, family, and behavior outcomes in a nation-wide sample of preschool-aged children. *International Journal of Behavioral Development, 34*(5) 427–440.
- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development, 6*(1), 111-135.
- Roth, R. M., Isquith, P. K., & Gioia, G. A. (2005). *BRIEF-A: Behavior Rating Inventory of Executive Function - Adult Version*. Lutz, FL: Psychological Assessment Resources.
- Roy, K. M., Tubbs, C. Y., & Burton, L. M. (2004). Don't Have No Time: Daily Rhythms and the Organization of Time for Low-Income Families. *Family Relations, 53*(2), 168-178.
- Rubin, K., Bukowski, W., & Parker, J. G. (1998). Peer interactions, relationships, and groups. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp.619-700). New York: Wiley.

- Rueda, M. R., Posner, M. I., & Rothbart, M. K. (2005). The development of executive attention: Contributions to the emergence of self-regulation. *Developmental Neuropsychology*, 28(2), 573-594.
- Rutter, M., Maughan, B., Mortimore, P., & Ouston, J. (1996). with Smith, A.(1979) *Fifteen Thousand Hours: secondary schools and their effects on children*. Cambridge: Harvard University Press.
- Sameroff, A. (2000). Dialectical processes in developmental psychopathology. In A. Sameroff, M. Lewis, & S. Miller (Eds.), *Handbook of developmental psychology* (2nd Ed., pp. 23-44). New York: Kluwer Academic/Plenum Publishers
- Sari, B. M. (2009). *Çocuk Davranış Listesi Kısa Formunun Türkçe Geçerlilik-Güvenilirlik Çalışması ve 3-6 Yaş Çocuklarında Mizacın Etyolojisinin Araştırılması* (Unpublished master dissertation). Gazi University, Ankara.
- Seabi, J., Cockcroft, K., Goldschagg, P., & Greyling, M. (2012). The impact of aircraft noise exposure on South African children's reading comprehension: The moderating effect of home language. *Noise and Health*, 14(60), 244.
- Shamama-tus-Sabah, S., & Gillani, N. (2011). Conduct problems, social skills, study skills, and home chaos in school children: A correlational study. *Pakistan Journal of Psychological Research*, 26(2), 201-215.
- Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion Q-sort scale. *Developmental Psychology*, 33(6), 906-916.
- Sims, M., Guilfoyle, A., & Parry, T. S. (2006). Children's cortisol levels and quality of child care provision. *Child: Care, Health and Development*, 32(4), 453-466.
- Snyder, J., Prichard, J., Schrepferman, L., Patric, M. R., & Stoolmiller, M. (2004). Child impulsiveness-inattention, early peer experiences, and the development of early onset of conduct problems. *Journal of Abnormal Child Psychology*, 32(6), 579-594.
- Solari, C. D., & Mare, R. D. (2012). Housing crowding effects on children's wellbeing. *Social Science Research*, 41(2), 464-476.

- Spilt, J. L., Lier, P. A., Leflot, G., Onghena, P., & Colpin, H. (2014). Children's social self-concept and internalizing problems: The influence of peers and teachers. *Child Development, 85*(3), 1248-1256.
- Stipek, D. (1993). *Attitudes/perceptions of competence* (Unpublished rating scale).
- Sumer, N., Solak, N., & Harma, M., (2013), *İşsiz Yaşam: İşsizliğin ve İş Güvencesizliğinin Birey ve Aile Üzerindeki Etkileri*. İstanbul: Koç University Press.
- Supplee, L. H., Unikel, E. B., & Shaw, D. S. (2007). Physical environmental adversity and the protective role of maternal monitoring in relation to early child conduct problems. *Journal of Applied Developmental Psychology, 28*(2), 166-183.
- Teglasi, H., Schussler, L., Gifford, K., Annotti, L. A., Sanders, C., & Liu, H. (2015). Child Behavior Questionnaire–Short Form for Teachers Informant Correspondences and Divergences. *Assessment, 22*(6), 730-748.
- Toker, S., Akan, A. E., & Selcuk, S. A. (2010). Revival of masonry buildings in Turkey for earthquake resistant design. *Erciyes University Journal of the Institute of Science and Technology, 26*(1), 18-26.
- Tovim K. K. (1996). *The Turkish Adaptation of The Early Childhood Environment Rating Scale* (Unpublished master thesis). Boğaziçi University, İstanbul.
- Uyanik, G. B., Simsek, Z., & Akman, B. (2008). Okul öncesi eğitim alan çocukların davranış problemlerinin anne ve öğretmen değerlendirilmeleri açısından karşılaştırılması. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 34*(34), 263-275.
- Valiente, C., Lemery-Chalfant, K., & Reiser, M. (2007). Pathways to problem behaviors: Chaotic homes, parent and child effortful control, and parenting. *Social Development, 16*(2), 249-267.
- Vandell, D. B., & Wolfe, B. (2000). *Child care quality: Does it matter and does it need to be improved?* Washington, DC: Department of Health and Human Services.

- Verhulst, F. C., & Akkerhuis, G. W. (1989). Agreement Between Parents' and Teachers' Ratings of Behavioral/Emotional Problems of Children aged 4–12. *Journal of Child Psychology and Psychiatry*, 30(1), 123-136.
- Vermeer, H. J., & van IJzendoorn, M. H. (2006). Children's elevated cortisol levels at daycare: A review and meta-analysis. *Early Childhood Research Quarterly*, 21(3), 390-401.
- Vernon-Feagans, L., Garrett-Peters, P., Willoughby, M., & Mills-Koonce, R. (2012). Chaos, poverty, and parenting: Predictors of early language development. *Early Childhood Research Quarterly*, 27(3), 339-351.
- Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. *Child Development*, 75(1), 296–312.
- Wachs, T.D. (1971). Environmental considerations in studies with nonextreme groups. In T.D. Wachs & R. Plomin (Eds.), *Conceptualization and measurement of organism-environment interaction* (pp. 44-67). Washington, DC: American Psychological Association.
- Wachs, T. D. (1979). Proximal experience and early cognitive-intellectual development: The physical environment. *Merrill-Palmer Quarterly of Behavior and Development*, 25(1), 3-41.
- Wachs, T. D. (1992). *The nature of nurture*. Newbury Park, CA: Sage
- Wachs, T. D., & Camli, O. (1991). Do ecological or individual characteristics mediate the influence of the physical environment upon maternal behavior. *Journal of Environmental Psychology*, 11(3), 249-264.
- Wachs, T. D., & Corapci, F. (2003). Environmental chaos, development and parenting across cultures. In C. Raeff & J. Benson (Eds.), *Social and cognitive development in the context of individual, social, and cultural processes* (pp 54-83). London: Routledge.
- Wachs, T. D., & Gandour, M. J. (1983). Temperament, environment, and six-month cognitive-intellectual development: A test of the organismic specificity hypothesis. *International Journal of Behavioral Development*, 6(2), 135-152.

- Wachs, T. D., & Gruen, G. E. (1982). *Early experience and human development*. New York: Plenum Press.
- Wachs, T. D., Gurkas, P., & Kontos, S. (2004). Predictors of preschool children's compliance behavior in early childhood classroom settings. *Journal of Applied Developmental Psychology, 25*(4), 439-457.
- Wasik, B. H., Ramey, C. T., Bryant, D. M., & Sparling, J. J. (1990). A longitudinal study of two early intervention strategies: Project CARE. *Child Development, 61*(6), 1682– 1696.
- Watamura, S. E., Phillips, D. A., Morrissey, T. W., McCartney, K., & Bub, K. (2011). Double Jeopardy: Poorer Social-Emotional Outcomes for Children in the NICHD SECCYD Experiencing Home and Child-Care Environments That Confer Risk. *Child development, 82*(1), 48-65.
- Welsh, M.C., Pennington, B.F., & Groisser, D. B. (1991). A normative developmental study of executive function: A window on prefrontal function in children. *Developmental Neuropsychology, 7*(2), 131-149.
- Winter, M. A., Davies, P. T., & Cummings, E. M. (2010). Children's security in the context of family instability and maternal communications. *Merrill-Palmer Quarterly, 56*(2), 131-142.
- Zelazo, P. D., Carter, A., Reznick, J. S., & Frye, D. (1997). Early development of executive function: A problem-solving framework. *Review of General Psychology, 1*, 198–226.
- Zelazo, P. D., Frye, D., & Rapus, T. (1996). An age-related dissociation between knowing rules and using them. *Cognitive Development, 11*(1), 37-63.
- Ziol-Guest, K., & McKenna, C. (2009). *Early childhood residential instability and school readiness: Evidence from the Fragile Families and Child Wellbeing Study* (Working Papers, No. 1195).