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Adult and infant temperament difference – does goodness of fit matter?

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Adult and infant temperament difference – does goodness of fit matter?

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Abstract

General agreement on temperament defines it as inborn differences in reactivity and self-regulation through which personality develops. Some temperamental traits increase the likelihood of be later psychological developmental and psychiatric disorders. Parenting plays a vital role buffering those risks. Interaction between a parent and a child is an interplay. It is affected both child temperament factors and caretaker personality. Goodness-of-fit refers to match between parenting behavior and child characteristics. Scarcely research has been acknowledged parental temperament or personality as a variable effecting parent-child bonding. Interventions targeted at reducing parenting stress and supporting families with children with “difficult temperament” are needed.

Keywords: temperament, parenting, emotional availability, goodness-of-fit

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1. INTRODUCTION

Temperament can be defined as inborn differences in the way we behave and react and regulate our own behavior (Keltikangas-Järvinen, 2004; Rothbart & Putnam, 2002) among other specific aspects. A key direction in temperament research is to acknowledge the significance of self-regulation in different outcomes in different areas of living. Research suggests that certain temperamental traits are related to later antisocial behavior or internalizing/externalizing problems (Kuo, Chih, Soong, Yang, & Chen, 2004) such as psychiatric disorders. Non-optimal parenting behavior plays an essential role in this risk development.

A child learns to regulate feelings and stress in interaction with the caretaker (Karlsson, Melartin, & Karlsson, 2007). Findings from animal studies suggest that early nursing/parenting may have more effect than heritability as far as stress sensitivity or tolerance is concerned (Karlsson et al., 2007). It has been hypothesized that secure attachment relationship can buffer genetic risks for weaker emotional regulatory abilities (Kochanska, Philibert, & Barry, 2009). Children vary in their susceptibility to parenting. Children with different temperamental traits are affected differently to same kind of parenting. Parenting can either support or diminish temperamental risk factors. To conclude, parenting plays a vital role in protection against the possible effects of the risk factors in temperament. Knowledge is needed on things that affect the parent-child interaction in order to help planning interventions. In this review the literature discussing the relations between child and parents temperaments and parenting is presented. Main aim is to give an overview of the literature about those child's and adults temperament features that affect parent-child interaction. Background thought is the model of goodness-of-fit (Thomas & Chess, 1977) that is the match or mismatch between child characteristics (temperament) and environmental factors (parental behavior).

Information and literature used to write this overview was retrieved mainly from searches of available articles in PsychInfo database. Using terms goodness-of-fit, child temperament, and adult temperament resulted only one article by (Rettew, Stanger, McKee, Doyle, & Hudziak,

2006). When the interactions between child and parent temperament was tested predicted interactions behavioral problems better than temperamental factors alone (Rettew et al., 2006). Findings support the theory of goodness-of-fit. Search was expanded exploratory to different combinations of previous terms and terms parenting and personality were used to widen information, main focus being in articles were both or either child or parent temperament was considered in relation to child development or parenting. Full text articles in English were selected. This review begins with the definitions of child and adult temperament, parenting and goodness-of-fit. Conclusions of the relations between previously mentioned themes accompanied in the end.

Temperament during early childhood and adulthood

Temperament can be defined as the biological or genetic base through which the subsequently developing personality and cognitive structures forms (Keltikangas-Järvinen, 2004; Rothbart & Putnam, 2002). Referring to most recent studies Shiner et al. (2012) summarize that these prominent becoming temperament characteristics merge from interactions amongst environment, biology and genes. The inborn differences of temperament that change the least along aging are rhythmicity and the strength and speed of movements (Keltikangas-Järvinen, 2000).

It is usually assumed that temperament is a relatively stable cluster of traits. Both observations and parent reports of infant temperament have been used to identify the components or factors of temperament (Rothbart, Sheese, & Posner, 2014). Factors of Fear, Negative affectivity, Extraversion, Affiliativeness, Orienting and Effortful Control have been summarized in Rothbart et als research (Rothbart, Ahadi, & Evans, 2000; Rothbart et al., 2014). Based on Infant Behavior Questionnaire (Rothbart et al., 2000) infant temperamental factors are perceptual sensitivity, soothability, fear, frustration, activity, positive affect and attentional persistence. The factors have been later combined to three broader dimension: Surgency, Negative Affectivity and Regulation (Rothbart et al., 2014). Rothbart et al., (2000b) remind that temperament itself develops and appears differently at different ages. It is also influenced by for example parenting (Kiff, Lengua, & Zalewski, 2011). Although infant

temperament was found being stable for example across age and gender (Bornstein et al., 2015) the supposed stableness doesn't mean static but dynamic traits affecting children's interactions with adults (Bornstein et al., 2015).

Capacity to regulate behaviors and feelings is a aspect of temperament (Bridgett DJ, Burt NM, Edwards ES, 2015). It is relevant to child development and successful adaptation (Mezzacappa, 2004). Self-regulation develops at the end of the first year of life. It is then when infant's begin controlling over behavior. First self-regulatory processes are abilities in attention orienting in the first year of life. This is followed by the age between 12 and 18 months when children learn to behave goal-directedly. Controlling behavior in the first year of life requires the presence of an adult (Kopp, 1982; Stępien-Nycz, Rostek, & Byczewska-Konieczny, 2015). Executive functioning, the cognitive controlling of behavior, predicts self-regulatory abilities in infancy (Stępien-Nycz et al., 2015). There is an increase in effortful control development just before and after two years of age (Kochanska, Murray, & Harlan, 2000). The regulation of one's cognition, behavior and emotion (i.e. self-regulation) is a complex aspect of temperament that can be divided into two subcomponents: effortful control processes and more automatic reactive processes (behavioral inhibition or impulsivity) (Bridgett DJ, Burt NM, Edwards ES, 2015). Effortful attention is included in self-regulation which modulates reactivity (Rothbart et al., 2014). To underscore the multidimensionality of temperament and self-regulation Bridgett DJ, Burt NM & Edwards ES (2015) present evidence in their review how self-regulation is transmitted from one generation to another via prenatal programming.

"Temperament is seen as a subdomain of personality" (Evans & Rothbart, 2007 p.869) and it develops at different ages (Rothbart et al., 2000). Rothbart's research findings show similarity between child and adult temperament factors. Evans & Rothbarts (2007b) five domains of adult temperament are Negative affect, Orienting sensitivity, Extraversion, Affiliativeness and Effortful control. Correlations also indicate a linkage between temperament and Big Five Personality model (Rothbart et al., 2000). A five factor adult temperament model corresponding to the Big Five personality scales of conscientiousness, extraversion, openness to experience, neuroticism and agreeableness has been supported (Evans & Rothbart, 2007b).

Parenting – a matter of reciprocal relationship

Parenting as a phenomenon is a matter of a reciprocal relationship (Seifer et al., 2014), not solely actions from a parent targeted at a child. Children are born with different qualities and these qualities can alter the behavior of a parent (Saunders, H., Kraus, A., Barone, L. & Biringen, 2015). Even though both child temperament characteristics and parent personality influence parenting behaviors (Bates, Schermerhorn, & Petersen, 2012; Hong et al., 2015) the relations between parenting and parent personality are not considerably studied (Atzaba-Poria, Deater-Deckard, & Bell, 2014). For example Webster-Stratton (1990) conceptualize stressors disrupting parents' functioning and interactions with children being extrafamilial (such as low SES), interparental (for example divorce) or difficult child temperament. No adult personality or temperament traits are considered.

Parents must be able to understand the signals of their infants and adapt their own behavior to them (Seifer & Schiller, 1995). This parental sensitivity and interpretations was already constructed by to infant signals Parenting sensitivity as a construct by Ainsworth, Blehar, Waters, & Wall (1978). The construct emotional availability (EA) considers the dyadic nature of sharing emotional connection (Saunders, H., Kraus, A., Barone, L. & Biringen, 2015). Theory of emotional availability is though highly influenced by attachment theory combining it with emotional perspectives (Saunders, Kraus, Barone, & Biringen, 2015). It puts together different aspects of interaction in order to explain parent-child relationship comprehensively (Salo & Flykt, 2013). Both adults and child's perspectives and qualities are considered (Biringen, Derscheid, Vliegen, Closson, & Easterbrooks, 2014; Saunders, H., Kraus, A., Barone, L. & Biringen, 2015). Emotional availability is a construct consisting of four parental components that are sensitivity, structuring, non-intrusiveness and non-hostility (Biringen et al., 2014). and two child components (Biringen et al., 2014). A sensitive caregiver maintains positive emotional connection with the child. By supporting child's learning and permitting independency adult expresses structuring behaviors and emotions. Avoiding interference and supporting independence are central parts of non-intrusiveness. Non-hostility refers to adults ability of regulating and expressing own negative emotions. Child components of emotional

availability are responsiveness and involvement. Child responsiveness refers to the amount of child enjoying and interacting with the adult. Child involvement means child inviting parent to join into play. (Biringen et al., 2014; Saunders, H., Kraus, A., Barone, L. & Biringen, 2015).

Parenting quality predicts child externalizing behavior but one should consider the role of child temperament alongside as a moderating factor (Stoltz, Beijers, Smeekens, & Deković, 2017). Child temperament moderates the linkage between emotional availability and attachment security (Kim, Chow, Bray, & Teti, 2017). On the other hand infant temperament has been independently shown to predict insecure attachment in a high-risk sample whereas maternal sensitivity did not contribute (Susman-Stillman, Kalkoske, Egeland, & Waldman, 1996). Sensitive caregiving has been found to have long lasting effects on either supporting or attenuating offsprings self-regulation in animal studies (Bridgett DJ, Burt NM, Edwards ES, 2015). Though, there has been noted an association between mothers' self-regulation and parenting behavior to child's better self-regulation in the future (Bridgett et al., 2011). (Doelling & Johnson, 1990). Reactive temperament has been found to moderate cognitive functioning and parental structuring (Gueron-Sela, Atzaba-Poria, Meiri, & Marks, 2016). Behind parenting there is parents personality or parent temperament although it is rarely a variable in research literature investigating interactions between child temperament, behavior problems and caregiving. Mothers responsiveness to their children is dependent on both child emotionality (temperament) and adult personality emphasizing the bidirectionality of parent-child relationship (Clark, Kochanska, & Ready, 2000).

2. GOODNESS-OF-FIT

Infants contribution to mother-child interaction is behavior influenced by temperamental features. One must take into account that child's behavior is dependent on how well does parents' behavior match particular traits in child. This match, or goodness-of-fit, is important because parent's strategies with the child either support or weaken child's adaptation and development (Seifer et al., 2014). The concept goodness-of-fit refers to the meaning of match/mismatch between certain environment and temperament or personality and was originally conceptualized by Chess & Thomas (1977). According to their definition "goodness

of fit results when the properties of the environment and its expectations and demands are in accord with the organism's own capacities, characteristics, and style of behaving." (Stella Chess, 1999 p.3). They emphasize that child's development is shaped through interactional processes between parent's behaviors influenced by the child's temperament (S Chess & Thomas, 1977). Mangelsdorf, Gunnar, Kestenbaum, & Lang (1990) found out that interplay between child's temperament and mothers behavior and personality predicted the security of attachment. According to Rettew et al. (2006) a large body of research shows the associations between child temperament, parenting and child adjustment. In their study they concluded that the association between child trait temperament and psychiatric problems can be dependent on parental temperament. For example parent-child temperament interaction explained a foster care placement outcome better than temperament characteristics individually. There are also different effects between mother and father temperament (Rettew et al., 2006). Kochanska, Clark, & Goldmans (1997) findings associate mothers negative emotionality being harmful to child development both independently and mediated by parenting behaviors. So parent personality impact to child adaptive development is also a matter of biological transmission too (Kochanska et al., 1997).

It is noteworthy that parent's self-perceptions about their own parenting skills shape the perceptions of the infant temperament (Verhage, Oosterman, & Schuengel, 2013). Total parenting stress is associated with parent reported infant negative emotionality (Oddi, Murdock, Vadnais, Bridgett, & Gartstein, 2013). Oddi et al. (2013a) also found better maternal effortful control to be associated with less stress related to parenting competence. To sum up, children affect parenting styles by exhibiting behaviors that are either consistent or contradictory to parent's expectations and parents' own cognitive characteristics (Seifer et al., 2014). Baer et al., (2015) explored the relation of the interactive effects of child temperament and maternal parenting. Neither maternal parenting nor the interaction between maternal parenting and child temperament were significantly associated with social functioning. Opposite to this Waller et al. (2016) concluded that the crucial factor preventing anti-social behavior from occurring is positive parenting.

Evidence considering both parent and child temperament as interacting correlates is not solely straightforward and simple. The similarity of temperamental traits has been noticed to associate with better parenting sense of competence in a matter of low negative emotionality and high sociability whereas child shyness and sociability of mothers associated with more parenting sense of competence (Grady & Karraker, 2017). A good fit is not always a matter of similarity. This was also supported when predictions of foster care placement success was considered in light of temperamental goodness-of-fit: maternal inflexibility and child's negative mood was a combination that predicted foster care placement failure. Interactive effects between child and parent characteristics attribute to for example family cohesion (Hong et al., 2015). Mothers self-regulatory capacity has been demonstrated to associate with mothers sensitivity (Gudmundson & Leerkes, 2012). Mothers low in empathy and children with high negative emotionality are a bad fit: interaction predict more assertive parenting leading to maladaptive outcomes (Clark et al., 2000). The combination of infant and maternal temperament has been shown to associate also with parenting stress: maternal effortful control and infant negative emotionality predicted maternal parenting stress (Oddi et al., 2013). Parenting stress is a risk factor for child well-being via negative parenting behavior (Oddi et al., 2013). Child temperament but also maternal effortful control is related to parenting stress (Oddi et al., 2013). The nature of the phenomenon is multidimensional or bidirectional because high levels of stress are associated with lower child executive functions (Gartstein, Bridgett, Young, Panksepp, & Power, 2013). Intrusive parenting is associated often with child's temperamental inhibition (Rubin, Coplan, & Bowker, 2009). One possible explanation to this is maternal emotion reactivity: some mothers may find it stressful to have an inhibited child and try to intrude in their child's shy behavior (Kiel & Buss, 2013).

In the framework of goodness of fit low-quality parenting can be interpreted as a environmental stressor. There are two different models explaining individual differences to environmental stressors (Stoltz et al., 2017). Diathesis-stress model presumes that individuals with vulnerability factors such as high negative affectivity are more vulnerable to environmental stressors. Second model, the differential susceptibility model, sees individuals vulnerable to negative experiences but also benefiting positive experiences above average (Stoltz et al., 2017). Evidence has not been straightforward but research supporting the

differential susceptibility model has been demonstrated. A longitudinal study by Slagt, Semon Dubas, & Aken (2016) showed important associations between parenting and child adjustment emphasizing the idea that children are affected differently by the same parenting behavior. Children with a more difficult temperament were vulnerable to negative parenting, but they also profited more from positive parenting (Slagt et al., 2016). Children high in impulsivity and low in effortful control profited parental responsiveness showing decrease in externalizing problems. Children high in negative emotionality were vulnerable to harsh parenting combination predicting decrease in prosocial behavior (Slagt et al., 2016). Fear temperament has been found to associate with supportive and intrusive parenting behaviors (Barnett & Scaramella, 2017). Mothers were less supportive and more intrusive with girls rated as high in fear reactivity. Sensitivity of mothers on the other hand has shown to slow increase in fear reactivity (Braungart-Rieker, Hill-Soderlund, & Karrass, 2010). Maternal sensitivity predicted less bedtime problems with children high, but not low, in negative emotionality (Conway, Modrek, & Gorroochurn, 2018). It is also noted that low-quality parenting impacts difficult temperament by exacerbating it (Micalizzi, Wang, & Saudino, 2017). An intervention study has shown that the quality of mother-infant interaction can be improved by enhancing maternal sensitive responsiveness (Van den Boom, 1994). Micalizzi et al. (2017) bring to consideration that there is a genetic relationship between negative parenting and difficult temperament. Not only child susceptibility factors are researched but parents differ also in their susceptibility to child temperament and reactivity. Child negative emotionality can be a chronic stressor (Clark et al., 2000) and some parents are more susceptible to temperamental difficultness of a child (Lee, 2013). Maternal depression (negative emotionality) explains different susceptibility to child's temperament (Lee, 2013).

3. CONCLUSIONS

There is a common understanding of child temperament traits being meaningful factors when development and possible future behavior problems are considered. It is also noteworthy that the interplay and emotional connection between a child and caretaker combines both child and parent perspectives as in the construct of emotional availability. Parenting and child development are reciprocal processes. Research shows that children with difficult temperament are vulnerable to non-optimal parenting behavior.

The previous research on temperament-parenting relationship has not been consistent (Bridgett et al., 2009) although the meaning of infant temperament as a factor contributing to parent-child interaction cannot be disregarded. To study temperament one must do it in a context of stimuli (Rothbart et al., 2000). Both child and parent variables should be taken into account when considering attachment and the reciprocal relationship between a caretaker and a child. There is an interplay between parenting and child's characteristics that mutually shape each other. Research looking at the directions of these multidimensional effects is needed. Most studies on parenting exclude fathers (Kochanska, Friesenborg, Lange, & Martel, 2004) and more research is needed on differences between fathers and mothers. Child negative emotionality has been conceptualized as a chronic stressor and parents personality predict parenting styles (Clark et al., 2000). Parenting stress can be the factor that mediates the relationships between parent characteristics, child temperament and parenting sensitivity. High temperamental negative affectivity is a vulnerability factor that certain children are more strained by environmental stressors such as harsh parenting. Theory of differential susceptibility has been supported by results that show vulnerable individuals benefitting sensitivity of a caretaker.

This review tries to map research on temperamental differences between a child and a parent in a context of goodness-of-fit. Literature search was not conducted in a systematic way which could be the next step. Difficulties finding specific articles handling the topic complicated the writing process. One of the restrictions and a challenge considering temperament research is that there has been a tendency to rename temperament variables (Rothbart et al., 2000) and the contents of for example temperament factors are not always commensurate. In several studies covering the field of parenting, temperament and adult personality the measurements are self-reports and mother-rated reports. To avoid shared method variance observational studies are needed.

One of the largest group of children referred to child psychologists are impulsive and easily irritable little boys who lack effortful control. Helping parents and other significant adults to

understand these vulnerable children is a central part of my clinical work. To offer information to parents about temperament-parenting relationship seems important in order to prevent vicious circles of “difficult” temperament children getting harsh parental behaviors. Parenting is not stable as “parents are learning as they go along” (Hong et al., 2015 p.112) so teaching parenting skills could improve this learning process. Children’s behavioral problems could decrease by educating parents on the temperamental issues (Ahn, 2005). There can be multiple processes that link parental personality and parenting behaviors (Kochanska et al., 2004). Parent self-efficacy, parenting stress, the whole family system of marital relationship are point of views that should be considered. Interventions should be targeted to families where the child is easily irritated (high in negative affectivity) and to support parents own self-regulatory capacities, sensitivity and things that reduce stress. This review supports the orientation to use evidence-based interventions (such as The Incredible Years program for parents) including strengthening of positive parenting to prevent children’s behavior problems.

REFERENCES

- Ahn, M. S. (2005). Effects of a Maternal Education Program Based on the Temperament Theory on the Temperamental Goodness-of-Fit between Mother and Child. *J Korean Acad Nurs*, 35(6), 1044–1053. Retrieved from <http://synapse.koreamed.org/DOIx.php?id=10.4040%2Fjkan.2005.35.6.1044>
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Oxford: Lawrence Erlbaum. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1980-50809-000&site=ehost-live>
- Atzaba-Poria, N., Deater-Deckard, K., & Bell, M. A. (2014). It takes more than one for parenting: How do maternal temperament and child’s problem behaviors relate to maternal parenting behavior? *Personality and Individual Differences*, 69, 81–86. <https://doi.org/10.1016/j.paid.2014.05.002>
- Baer, J., Schreck, M., Althoff, R. R., Rettew, D., Harder, V., Ayer, L., ... Hudziak, J. J. (2015). Child Temperament, Maternal Parenting Behavior, and Child Social Functioning. *Journal of Child and Family Studies*, 24(4), 1152–1162. <https://doi.org/10.1007/s10826-014-9924-5>

- Barnett, M. A., & Scaramella, L. V. (2017). Supportive and Intrusive Parenting During Early Childhood : Relations With Children ' s Fear Temperament and Sex, *31*(5), 553–562.
- Bates, J. E., Schermerhorn, A. C., & Petersen, I. T. (2012). Temperament and parenting in developmental perspective. In M. Zentner & R. L. Shiner (Eds.), *Handbook of temperament*. (pp. 425–441). New York, NY: The Guilford Press. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2012-22484-020&site=ehost-live>
- Biringen, Z., Derscheid, D., Vliegen, N., Closson, L., & Easterbrooks, M. A. (2014). Emotional availability (EA): Theoretical background, empirical research using the EA Scales, and clinical applications. *Developmental Review, 34*(2), 114–167. <https://doi.org/10.1016/j.dr.2014.01.002>
- Bornstein, M. H., Putnick, D. L., Gartstein, M. A., Hahn, C., Auestad, N., & O'Connor, D. L. (2015). Infant Temperament: Stability by Age, Gender, Birth Order, Term Status, and Socioeconomic Status. *Child Development, 86*(3), 844–863. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=mlf&AN=EIS102580023&site=ehost-live>
- Braungart-Rieker, J. M., Hill-Soderlund, A. L., & Karrass, J. (2010). Fear and Anger Reactivity Trajectories From 4 to 16 Months: The Roles of Temperament, Regulation, and Maternal Sensitivity. *Developmental Psychology, 46*(4), 791–804. <https://doi.org/10.1037/a0019673>
- Bridgett, D. J., Gartstein, M. A., Putnam, S. P., Lance, K. O., Iddins, E., Waits, R., ... Lee, L. (2011). Emerging effortful control in toddlerhood: The role of infant orienting/regulation, maternal effortful control, and maternal time spent in caregiving activities. *Infant Behavior and Development, 34*(1), 189–199. <https://doi.org/10.1016/j.infbeh.2010.12.008>
- Bridgett, D. J., Gartstein, M. A., Putnam, S. P., McKay, T., Iddins, E., Robertson, C., ... Rittmueller, A. (2009). Maternal and contextual influences and the effect of temperament development during infancy on parenting in toddlerhood. *Infant Behavior and Development, 32*(1), 103–116. <https://doi.org/https://doi.org/10.1016/j.infbeh.2008.10.007>
- Bridgett DJ, Burt NM, Edwards ES, et al. (2015). Intergenerational transmission of self regulation: A multidisciplinary review and integrative conceptual framework. *Psychl Bull, 141*(3), 602–654. <https://doi.org/10.1037/a0038662>
- Chess, S, & Thomas, a. (1977). Temperament and the parent-child interaction. *Pediatric*

Annals, 6, 574–582. <https://doi.org/10.3928/0090-4481-19770901-07>

Chess, Stella. (1999). *Goodness of fit : clinical applications from infancy through adult life*. (A. Thomas, Ed.). Philadelphia, PA: Brunner/Mazel.

Clark, L. A., Kochanska, G., & Ready, R. (2000). Mothers ' Personality and Its Interaction With Child Temperament as Predictors of Parenting Behavior, *79*(2), 274–285. <https://doi.org/10.1037//0022-3514.79.2.274>

Conway, A., Modrek, A., & Gorroochurn, P. (2018). Maternal Sensitivity Predicts Fewer Sleep Problems at Early Adolescence for Toddlers with Negative Emotionality: A Case of Differential Susceptibility. *Child Psychiatry And Human Development*, *49*(1), 86–99. <https://doi.org/10.1007/s10578-017-0730-3>

Doelling, J. L., & Johnson, J. H. (1990). Predicting success in foster placement: The contribution of parent-child temperament characteristics. *American Journal of Orthopsychiatry*, *60*(4), 595–593.

Evans, D. E., & Rothbart, M. K. (2007a). Developing a model for adult temperament. *Journal of Research in Personality*, *41*(4), 868–888. <https://doi.org/10.1016/j.jrp.2006.11.002>

Evans, D. E., & Rothbart, M. K. (2007b). Developing a model for adult temperament. *Journal of Research in Personality*, *41*(4), 868–888. <https://doi.org/10.1016/j.jrp.2006.11.002>

Gartstein, M. A., Bridgett, D. J., Young, B. N., Panksepp, J., & Power, T. (2013). Origins of Effortful Control: Infant and Parent Contributions. *Infancy*, *18*(2), 149–183. Retrieved from <http://10.0.4.87/j.1532-7078.2012.00119.x>

Grady, J. S., & Karraker, K. (2017). Mother and child temperament as interacting correlates of parenting sense of competence in toddlerhood. *Infant and Child Development*, *26*(4), 1–16. <https://doi.org/10.1002/icd.1997>

Gudmundson, J. A., & Leerkes, E. M. (2012). Links between mothers' coping styles, toddler reactivity, and sensitivity to toddler's negative emotions. *Infant Behavior & Development*, *35*(1), 158–166. <https://doi.org/10.1016/j.infbeh.2011.07.004>

Gueron-Sela, N., Atzaba-Poria, N., Meiri, G., & Marks, K. (2016). Temperamental Susceptibility to Parenting among Preterm and Full-Term Infants in Early Cognitive Development. *Infancy*, *21*(3), 312–331. <https://doi.org/10.1111/infa.12120>

- Hong, R. Y., Tan, C. S., Lee, S. S. M., Tan, S.-H., Tsai, F.-F., Poh, X.-T., ... Zhou, Y. (2015). Interactive Effects of Parental Personality and Child Temperament with Parenting and Family Cohesion. *Parenting: Science & Practice, 15*(2), 92–118. Retrieved from <http://10.0.4.56/15295192.2015.1020143>
- Karlsson, L., Melartin, T., & Karlsson, H. (2007). Lapsuuden stressi uhkaa aikuisiän terveyttä. *Lääkärilehti, 37*(62), 3293–3299.
- Keltikangas-Järvinen, L. (2000). *Tunne itsesi, suomalainen*. Helsinki: WSOY.
- Keltikangas-Järvinen, L. (2004). *Temperamentti : ihmisen yksilöllisyys*. Helsinki: WSOY.
- Kiel, E. J., & Buss, K. A. (2013). Toddler Inhibited Temperament , Maternal Cortisol Reactivity and Embarrassment , and Intrusive Parenting. *Journal of Family Psychology, 27*(3), 512–517. <https://doi.org/10.1037/a0032892>
- Kiff, C. J., Lengua, L. J., & Zalewski, M. (2011). Nature and nurturing: Parenting in the context of child temperament. *Clinical Child and Family Psychology Review, 14*(3), 251–301. <https://doi.org/10.1007/s10567-011-0093-4>
- Kim, B., Chow, S., Bray, B., & Teti, D. M. (2017). Trajectories of mothers ' emotional availability : relations with infant temperament in predicting attachment security, *19*(1), 38–57.
- Kochanska, G., Clark, L. A., & Goldman, M. S. (1997). Implications of Mother's Personality for their Parenting and their Young Children's Developmental Outcomes. *Journal of Personality, 65*(2), 387–420. Retrieved from <http://10.0.4.87/j.1467-6494.1997.tb00959.x>
- Kochanska, G., Friesenborg, A. E., Lange, L. A., & Martel, M. M. (2004). Parents' Personality and Infants' Temperament as Contributors to Their Emerging Relationship. *Journal of Personality and Social Psychology, 86*(5), 744–759. <https://doi.org/10.1037/0022-3514.86.5.744>
- Kochanska, G., Murray, K. T., & Harlan, E. T. (2000). Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology, 36*(2), 220–232. <https://doi.org/10.1037/0012-1649.36.2.220>
- Kochanska, G., Philibert, R. A., & Barry, R. A. (2009). Interplay of genes and early mother-child relationship in the development of self-regulation from toddler to preschool age. *Journal*

of Child Psychology and Psychiatry and Allied Disciplines, 50(11), 1331–1338.
<https://doi.org/10.1111/j.1469-7610.2008.02050.x>

Kopp, C. B. (1982). Antecedents of self-reg- a dev persp- Kopp 1982. *Developmental Psychology*, 18(2), 199–214. <https://doi.org/10.1037/0012-1649.18.2.199>

Kuo, P.-H., Chih, Y.-C., Soong, W.-T., Yang, H.-J., & Chen, W. J. (2004). Assessing Personality Features and Their Relations With Behavioral Problems in Adolescents: Tridimensional Personality Questionnaire and Junior Eysenck Personality Questionnaire. *Comprehensive Psychiatry*, 45(1), 20–28. <https://doi.org/10.1016/j.comppsy.2003.09.011>

Lee, E. (2013). Differential Susceptibility to the Effects of Child Temperament on Maternal Warmth and Responsiveness. *Journal of Genetic Psychology*, 174(4), 429–449. Retrieved from <http://10.0.4.56/00221325.2012.699008>

Mangelsdorf, S., Gunnar, M., Kestenbaum, R., & Lang, S. (1990). Infant Proneness-to-Distress Temperament , Maternal Personality , and Mother-Infant Attachment : Assoeiations and Goodness of Fit, (X), 820–831.

Mezzacappa, E. (2004). Alerting, orienting, and executive attention: Developmental properties and sociodemographic correlates in an epidemiological sample of young, urban children. *Child Development*, 75(5), 1373–1386. <https://doi.org/10.1111/j.1467-8624.2004.00746.x>

Micalizzi, L., Wang, M., & Saudino, K. J. (2017). Difficult temperament and negative parenting in early childhood : a genetically informed cross-lagged analysis. <https://doi.org/10.1111/desc.12355>

Oddi, K. B., Murdock, K. W., Vadnais, S., Bridgett, D. J., & Gartstein, M. A. (2013). Maternal and Infant Temperament Characteristics as Contributors to Parenting Stress in the First Year Postpartum. *Infant and Child Development*. <https://doi.org/10.1002/icd.1813>

Rettew, D. C., Stanger, C., McKee, L., Doyle, A., & Hudziak, J. J. (2006). Interactions between child and parent temperament and child behavior problems. *Comprehensive Psychiatry*, 47, 412–420. <https://doi.org/10.1016/j.comppsy.2005.12.008>

Rothbart, M. K., Ahadi, S. A., & Evans, D. E. (2000). Temperament and personality: Origins and outcomes. *Journal of Personality and Social Psychology*, 78(1), 122–135. <https://doi.org/10.1037/0022-3514.78.1.122>

Rothbart, M. K., & Putnam, S. P. (2002). Temperament and socialization. In L. Pulkkinen & A.

Caspi (Eds.), *Paths to successful development: Personality in the life course*. (pp. 19–45). New York, NY: Cambridge University Press.
<https://doi.org/10.1017/CBO9780511489761.002>

Rothbart, M. K., Sheese, B. E., & Posner, M. I. (2014). Temperament and emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation., 2nd ed.* (pp. 305–320). New York, NY: Guilford Press. Retrieved from
<http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2013-44085-019&site=ehost-live>

Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology, 60*, 141–171.
<https://doi.org/10.1146/annurev.psych.60.110707.163642>

Salo, S., & Flykt, M. (2013). Lapsen ja vanhemman välisen emotionaalisen saatavillaolon merkitys lapsen kehityksessä ja hyvinvoinnissa. *Psykologia, 48*(05–06), 402–416.

Saunders, H., Kraus, A., Barone, L. & Biringen, Z. (2015). Emotional availability: theory, research, and intervention.

Saunders, H., Kraus, A., Barone, L., & Biringen, Z. (2015). Emotional availability: Theory, research, and intervention. *Frontiers in Psychology, 6*. Retrieved from
<http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2015-41657-001&site=ehost-live>

Seifer, R., Dickstein, S., Parade, S., Hayden, L. C., Magee, K. D., & Schiller, M. (2014). Mothers' appraisal of goodness of fit and children's social development. *International Journal of Behavioral Development, 38*(1), 86–97. <https://doi.org/10.1177/0165025413507172>

Seifer, R., & Schiller, M. (1995). The Role of Parenting Sensitivity, Infant Temperament, and Dyadic Interaction in Attachment Theory and Assessment. *Monographs of the Society for Research in Child Development, 60*(2/3), 146. <https://doi.org/10.2307/1166176>

Shiner, R. L., Buss, K. A., McClowry, S. G., Putnam, S. P., Saudino, K. J., & Zentner, M. (2012). What is temperament now? Assessing progress in temperament research on the twenty-fifth anniversary of Goldsmith et al (1987). *Child Development Perspectives, 6*(4), 436–444. Retrieved from
<http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2012-31092-018&site=ehost-live>

Slagt, M., Semon Dubas, J., & Aken, M. A. G. (2016). Differential Susceptibility to Parenting in

Middle Childhood: Do Impulsivity, Effortful Control and Negative Emotionality Indicate Susceptibility or Vulnerability? *Infant & Child Development*, 25(4), 302–324.
<https://doi.org/10.1002/icd.1929>

Stępien-Nycz, M., Rostek, I., & Byczewska-Konieczny, K. (2015). Emotional and attentional predictors of self-regulation in early childhood. *Polish Psychological Bulletin*, 46(3), 421–432. <https://doi.org/10.1515/ppb-2015-0049>

Stoltz, S., Beijers, R., Smeekens, S., & Deković, M. (2017). Diathesis stress or differential susceptibility? testing longitudinal associations between parenting, temperament, and children's problem behavior. *Social Development*, 26(4), 783–796. Retrieved from <http://10.0.4.87/sode.12237>

Susman-Stillman, A., Kalkoske, M., Egeland, B., & Waldman, I. (1996). Infant temperament and maternal sensitivity as predictors of attachment security. *Infant Behavior and Development*, 19(1), 33–47. [https://doi.org/10.1016/S0163-6383\(96\)90042-9](https://doi.org/10.1016/S0163-6383(96)90042-9)

Thomas, A., & Chess, S. (1977). *Temperament and development*. Oxford: Brunner/Mazel. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1978-03178-000&site=ehost-live>

van den Boom, D. C. (1994). The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development*, 65(5), 1457–1477. <https://doi.org/10.2307/1131511>

Verhage, M. L., Oosterman, M., & Schuengel, C. (2013). Parenting self-efficacy predicts perceptions of infant negative temperament characteristics, not vice versa. *Journal of Family Psychology*, 27(5), 844–849. <https://doi.org/10.1037/a0034263>

Waller, R., Trentacosta, C. J., Shaw, D. S., Neiderhiser, J. M., Ganiban, J. M., Reiss, D., ... Hyde, L. W. (2016). Heritable temperament pathways to early callous–unemotional behaviour. *The British Journal of Psychiatry*, 209(6), 475–482. <https://doi.org/10.1192/bjp.bp.116.181503>

Webster-Stratton, C. (1990). Stress: A potential disruptor of parent perceptions and family interactions. *Journal of Clinical Child Psychology*, 19(4), 302–312. https://doi.org/10.1207/s15374424jccp1904_2