From the Principal Investigator

This year marks the 10th anniversary of the Stony Brook Temperament Study, and I am delighted to be celebrating it with you. It is hard to believe that approximately a decade has passed since you came to Stony Brook with your three-year-old child to participate in this study. Over these 10 years, you have helped us build a remarkable study of the growth and development of young children through childhood, and now into adolescence.

Few studies have followed as many healthy children as intensively and for as many years as the Stony Brook Temperament Study. Science builds on the contributions of many people, and with your help we are learning more about the complex interplay between child temperament, genes, and biological and environmental factors in children’s health and development.

In this 10th anniversary newsletter we summarize some of the many findings from this large and multifaceted study. Most of these results have been published in leading scientific journals, and many of our papers are now widely cited in the scientific literature.

However, the most interesting findings are yet to come. How will children handle the many new challenges of adolescence – increased academic demands, changing peer groups and pressures, physical maturation, and greater independence? In particular, we are eager to learn how much a child’s behavior as a three- and six-year old can tell us about how children later cope with the challenges of adolescence.

In the next phase of the study, we will invite you and your child to come to our lab when he/she is about 12 years old and again at age 15, with a much briefer assessment in your home at age 13½. Your participation is vital, as it is so important to include the full range of children in all of their individuality.

You are our partners in this ambitious and exciting scientific enterprise, and we cannot succeed without your help. We greatly appreciate all that you have already contributed to this project, and hope that we can count on your continued participation.

Again, thank you for all of your help in creating this unique and important study. My best wishes to you and your family for a wonderful new year.

Daniel N. Klein, Ph.D.
Professor of Psychology and Psychiatry and Behavioral Science
Principal Investigator,
Stony Brook Temperament Study
Stony Brook University
Temperament: Structure, Genes, and Stress

Now that we’ve started the age 12 phase of the Temperament study, we thought you might be interested in hearing about some of our recent findings from the earlier phases, and how they help us to understand children’s emotional development. One question we are attempting to answer with our research is how to best understand the core structure of temperament, and whether there are differences between boys and girls. We recently published two papers that take important steps forward in answering these questions. In one, based on the time your children spent in our laboratory, we found that there are five core aspects to temperament: How sociable children are; how much positive emotion (e.g., joy, exuberance) and interest they show; how much negative emotion (i.e., sadness, anger) they show; whether or not they like to explore new situations and meet new people, as opposed to being more nervous and inhibited; and how impulsive they are. Building on this, we found that, based on observations during the laboratory visits, girls tend to be more sociable and show greater positive affect, but are also more fearful than boys. In contrast, boys are more active, impulsive, and show greater negative affect. Interestingly, when parents describe their child’s temperament, their descriptions didn’t always match what was observed in the laboratory. For instance, parents tended to describe girls as showing more sadness than boys. Together, these findings give us a better understanding of the structure of temperament in children, and tell us there are important differences between boys and girls, but that we need to pay close attention to how we measure temperament.

We have also been working to understand how child temperament is related to genes and biological markers of stress. For instance, we have found that a particular variant of a gene that influences levels of dopamine, a neurochemical linked to emotional functioning, influences how much negative or positive emotion children express towards their parents, which in turn influences how their parents act towards them in return. We also recently examined how parenting influences children’s responses to stress. We found that when parents express more positive emotions towards their child, their child produces lower levels of a hormone called cortisol, which is partly responsible for regulating how the body responds to stress. However, this effect was particularly true in children who were better able to regulate their own emotions and behavior, rather than being impulsive. This pair of findings make a substantial contribution to our understanding of parent-child interactions as well as the importance of positive parenting in how children respond to stress. We’re all very excited for yet more new and interesting findings to come out of the Stony Brook Temperament Study!

- Daniel Kopala-Sibley, Ph.D.
Persistent Irritability in Young Children

It’s very typical for young children to be irritable at times, but some are more irritable than others. When children become irritable, they are often more easily frustrated and can communicate their frustration through anger outbursts, temper tantrums, and misbehaviors that are common for this developmental stage. The communication of anger is actually adaptive for a number of reasons. For example, it is a way for the child to communicate that he or she is unhappy with another person’s behavior. However, irritability can also have maladaptive consequences. For instance, children who are extremely irritable often get angry for no good reason, and they may take their anger out on the wrong people, at the wrong time, and for the wrong reasons. This may lead to difficulties relating to peers and family members, and being disruptive at home, school, or in their community. We are studying anger and irritability in young children because there is evidence that highly irritable children may be at greater than average risk for experiencing problems with anxiety, depression, and aggression in adolescence and adulthood.

As part of the Stony Brook Temperament Study, we have recently begun to examine how irritability in early childhood is linked to patterns of brain activity during preadolescence. We hypothesized that children who were persistently irritable when they were younger would be more sensitive and reactive to negative emotional information later in life. As you may recall, when your child began participating in the Stony Brook Temperament Study, we interviewed you about your child’s emotional and behavioral adjustment. When you and your child returned to our lab when they were 9 years old, they completed several computerized games while we recorded their brain activity using electroencephalogram (EEG). These games included winning and losing money and viewing pleasant pictures (e.g., roller coasters, cuddly animals, and delicious food) and unpleasant pictures (e.g., car crashes and scary animals). In contrast to what we had predicted, we found that children who were more irritable when they were younger had stronger brain responses to pleasant emotional pictures and to winning money. Their brain responses to unpleasant pictures were no different from children who were less irritable when they were younger.

These findings suggest that children who are irritable at a very young age are more sensitive to pleasant and rewarding events and they find it difficult to regulate their emotions or behaviors when they want or expect something good but are unable to obtain it. It may also suggest that these children are more likely to try harder and put more effort into obtaining what they want. This is the first study to show that irritability in young children is associated with greater brain responses to positive and rewarding events, and offers a new perspective on understanding irritability in young children.

Currently we are following up on this line of research by continuing to evaluate these same brain responses at the age 12 visit. We also hope to examine whether and how environmental factors influence irritability in early childhood to promote adaptive or maladaptive emotional and behavioral responses to challenging events as the children transition into adolescence.

- Ellen M. Kessel, M.A
Temperament and Psychological Symptoms

One of the questions the Stony Brook Temperament Study is trying to answer is whether early childhood temperament is associated with current or later adjustment. It is well known that in adolescents and adults, personality is related to psychological symptoms, but less is known about these associations in preschool-aged children. In 2011, we published a paper examining the links between temperament in preschool-aged children and parents’ reports of their children’s psychological symptoms. More recently, we published another paper that examined which factors, including temperament, in preschool-aged children contributed to the later development of depressive symptoms three years later, around the age of school-entry, as reported by parents. The data used in these papers were collected during the first and second waves of assessments, when children were approximately 3 and 6 years old.

In this research, it is important to keep in mind that many seemingly maladaptive behaviors that young children display are developmentally appropriate. For example, it is common for young children to have some fears when separating from parents, just as the occasional temper tantrum is not cause for concern. For us, the line between typical and problematic behavior is whether the behaviors are very frequent, severe, persist over an extended period of time, and/or negatively impact the child and family’s life.

The series of games that your child participated in the first time your family visited our laboratory was a measure of child temperament. It is a structured assessment called the Laboratory Temperament Assessment Battery (Lab-TAB), and it has been used by a number of research groups across the country as an observational measure of child temperament. The assessments were video-recorded, and trained coders later rated the child’s behaviors throughout the episodes. They looked for facial cues (like smiles and frowns), bodily cues (like jumping up and down in excitement or kicking angrily), and vocal cues (like laughter or crying) to understand the child’s reactions to various tasks and gain a sense of their temperament. From these codes, five main dimensions of temperament were derived (see “Temperament: Structure, Genes, and Stress” earlier in this issue of the newsletter): Sociability/Assertiveness, Exuberance, Dysphoria, Fear/Inhibition, and Impulsivity/Disinhibition. These five dimensions are fairly consistent with the structure of adult personality and temperament in youth found in other studies.

In each of the first two waves of assessments, parents completed an interview with a staff member or graduate student about their child’s moods and behaviors, including whether their child experienced sad mood, significant fears, hyperactivity, inattention, and defiance. Structured interviews for assessing symptoms in early childhood are relatively new to the field, and this measure had just been developed at the time of the first assessment. We used this information to explore the links between temperament and psychological symptoms.

We found patterns of associations between the child temperament dimensions and parents’ reports of psychological symptoms in preschoolers that were similar to those seen in adolescents and adults. First, we found that temperamental dysphoria (sad or angry mood) and low exuberance were associated with depressive symptoms. Second, the temperamental dimensions of fear, low exuberance, and low sociability were all associated with anxiety symptoms. Third, both dysphoria and disinhibition/impulsivity were associated with oppositional and defiant behavior problems.
More recently, we examined preschool-aged predictors of parent-reported depressive symptoms at age 6. Although there are a number of factors that are known to predict depression in adolescents and adults, it is unclear what factors might be at play in young children. Seven percent of the children were experiencing significant depressive symptoms at the time of the age 6 wave of assessments according to their parents’ reports. We examined a number of potential predictors, including child temperament, peer functioning as reported by the preschool teacher, past parental psychological symptoms, and environmental factors (life stressors, parenting style).

The results demonstrated that children whose parents reported that they experienced depressive symptoms at the time of the second assessment (kindergarten and 1st grade) were more anxious and displayed lower levels of inhibitory control (such as having difficulty waiting to hear a bell before eating an appealing snack) as preschoolers, had more difficulties with peers according to their preschool teachers, had family members with a history of psychological symptoms, and experienced more stressful life events (e.g., illness, injury, extended separations from parents) in the previous 6 months. Importantly, these findings are consistent with known predictors of depression in adolescents and adults, and suggest that depression in young children may be caused by similar factors as those that lead to depression in older youth and adults.

Given its size, scope, and length, the Stony Brook Temperament Study is seen as important and unique in the field of child development and mental health. We thank you for your commitment to the study, and your continued participation is critical in shedding light on the factors that lead to children’s development and health.

- Allison P. Danzig, M.A.
Moving? New Phone? Questions/Concerns?

We are looking forward to seeing you and your children again for the Age 12 Assessment!

If you have moved or changed your phone number, or have a question for us, please call us at (631) 632-4115. You can also contact us via our email address, temperament.study@stonybrook.edu. Even if you have moved out of the New York area, we would still like to have you and your child participate in this phase of the study! Please contact us as soon as possible so we can determine how best to have you take part.

Resources for Parents and Teens

Project C.A.R.E. (Challenge Activities Ropes Experience) is "a non-traditional, experiential approach to building individual and team growth for adolescents. The state-of-the-art course is easily accessible, centrally located on the Nassau/Suffolk border on the beautiful grounds of The Long Island Home. The Project C.A.R.E. program has been designed to help children and adolescents develop self-esteem, confidence and trust in one’s self and others."

There is a website called volunteermatch.org where you can find volunteer opportunities in your area. It lets you narrow your search by town, interest, and age, which makes it easy for families to search for opportunities.

Finally, for problems that may require professional attention, please contact your pediatrician or consider the following resources:

- Stony Brook University, Department of Psychiatry  631- 632-8850
- Stony Brook University Krasner Psychological Center  631-632-7830
- Child & Family Psychological Services  631-265-9850
- Brookhaven Youth Bureau, Medford  631-451-8011
- Pederson Krag MHC, Smithtown  631-920-8300
- Family Service League, Huntington  631-427-3700
- Long Island Parenting Institute  631-737-1454

Previous Issues of the Temperament Study Newsletter

You can find previous issues of the Stony Brook Temperament Study newsletter on our website – http://www.psychology.sunysb.edu/sbutmmtstudy/