

Mental Health: 161-163

161.

Somatic Symptoms During Adolescence: Does Parenting Style Play a Role?

Rachel S. White, PhD; Constance Wiemann, PhD; Beth Garland, PhD

Baylor College of Medicine

Purpose: A positive relationship exists between anxious and depressive symptoms and somatic symptoms in children and adolescents. Somatic symptoms have been associated with physical discomfort, poor school attendance, social difficulties, and frequent medical visits. Prevalence studies suggest that in youth, somatic symptoms are most common within adolescent samples. In one study, 23% of 13 to 17 year olds reported somatic symptoms over a one year period (compared to 13% of 2 to 6 year olds and 17% of 7 to 12 year olds). Thus, interventions aimed at decreasing such symptoms among adolescents are important. Behavioral interventions taught directly to the patient are common. Little is known about other systems within a child's environment and the role they play in the development or maintenance of somatic symptoms. It may be that behavioral interventions could be more effective if augmented with specific parenting strategies. The current study examined ways in which different parenting styles (e.g., authoritarian, authoritative, and permissive) relate to somatic symptoms in adolescents experiencing anxious or depressive symptoms. Understanding parenting styles and how they relate to somatic symptoms in adolescents is important in designing or improving interventions for these patients.

Methods: Participants were 141 middle school adolescents, aged 11- to 15-years, with a mean age of 12.33-years (SD = 1.22). Male participants made up 43.3% of the sample. Participants were asked to complete a questionnaire packet, with up to 20 students participating at one time. Portions of the questionnaire examined for this study included data from the Youth Self Report (Achenbach & Rescorla, 2001) and the Parental Authority Questionnaire (Buri, 1991), both of which have been shown to have adequate reliability and validity. Mediation analyses were performed (Baron & Kenny, 1986), followed by bootstrapping analytical methods to determine significance of the mediation effect.

Results: Authoritarian Parenting Style (AP) was a significant predictor of Somatic symptoms above and beyond Anxiety Problems, $\beta = .15$, $p = .04$. The inclusion of Authoritarian parenting style into the model resulted in a combined 39% of variance in Somatic Problems, overall $R = .63$, $p < .001$. When controlling for AP, the beta weight for Anxiety problems dropped from $.62$, $p < .001$ to $.58$, $p < .001$. Permissive Parenting Style and Authoritative Parenting Style were not significantly associated with Somatic Problems.

Conclusions: Although AP, characterized by high levels of control and low levels of warmth, was not a full mediator in the current analyses, it was a significant predictor of somatic complaints for adolescents in this sample. This finding provides support for the addition of parenting-based interventions for children who have anxiety, and in particular, have somatic symptoms. Interventions that target both the individual adolescent and their families could have positive impacts on number of medical visits, school

attendance, and distress experienced by these adolescents. Future research should explore such interventions.

Sources of Support: None

162.

The Impact of Body Mass Index on the Associations Between Pubertal Timing and Self-harm, Depression, and Self-esteem in Adolescent Girls.

Emily Ruedinger, MD¹; Rebecca Shlafer, PhD¹; Melanie Wall, PhD²; Tsun-Fang Hsueh, MSc³; Dianne Neumark-Sztainer, PhD¹

¹University of Minnesota; ²Columbia University & New York State Psychiatric Institute; ³Columbia University

Purpose: Among girls, early pubertal development has emerged as a risk factor for self-harm, depression, and low self-esteem. Compared to their on-time peers, girls who experience early puberty are also more likely to have elevated body mass index (BMI). Despite this, few studies that have examined the associations between pubertal timing and emotional health have accounted for BMI. The purpose of this study was to identify how, if at all, BMI impacts the relationship between pubertal timing and self-harm, depression, and self-esteem in a diverse group of female adolescents.

Methods: Data were drawn from EAT 2010 (Eating and Activity in Teens), a population-based survey of diverse adolescents (mean age: 14.7 years). A subset of female participants (n=1165) were categorized into four pubertal groups based on self-reported age of menarche: very early (11%, age = 10 yrs), early (25%, age 11 yrs), on-time (52%, age 12-13 yrs), and late (12%, age =14 yrs). BMI was calculated from measured height and weight. The sample population demonstrated the expected inverse relationship between BMI and pubertal timing. Self-harm was assessed using a dichotomized response (never vs. ever) to the following question: "Have you ever deliberately hurt yourself, such as cutting, scratching or burning, but not with the goal of ending your life?" Depressive mood was measured using the six-item Kandel and Davies Depressive Mood Scale (Cronbach's alpha 0.83). Body satisfaction was measured using the sum score of response to participants' satisfaction with 13 body parts, rated on a 5-point Likert scale (Cronbach's alpha 0.94). Regression analysis was performed adjusting for race, age at time of survey, and socioeconomic status (SES) to determine associations between pubertal timing and self-harm, depression, and self-esteem. These analyses then were repeated including BMI as a covariate.

Results: Initial analyses adjusting for race, age at time of survey, and SES, revealed that, compared to their on-time peers, girls who experienced very early puberty had higher odds of self-harm behavior (OR = 1.56, 95% CI: 1.01-2.42), significantly higher depressive symptom scores ($\beta = 1.03$, SE = 0.50), and significantly lower self esteem scores ($\beta = -0.93$, SE = 0.36). When analyses were repeated including BMI as an additional covariate, the odds of engaging in self-harm behavior and the difference in depression scores were no longer statistically significant. However, self-esteem scores remained significantly lower for girls who experienced very early puberty compared to their on-time peers ($\beta = -0.83$, SE = 0.36).

Conclusions: Initial, unadjusted outcomes supported previous research, but the associations between early pubertal timing and self-harm behavior and depression were no longer significant when adjusting for BMI. This indicates that BMI plays an important role in the relationship between pubertal timing and emotional health, and highlights the need to adjust for BMI in future studies. Clinically, providers can consider weight, pubertal timing, and mental health as inter-related and may use any of these topics as entry-points into discussion with patients and families about all of these issues.

Sources of Support: NHLBI #R01HL084064 (PI: Dianne Neumark-Sztainer) and MCHB #T71MC00006 (PI: Michael Resnick).

163.

The Relationship Between Pubertal Status and Neural Activity During Risky Decision-making in Male Adolescents

Anne-Lise Goddings, MBBS¹; Iroise Dumontheil, PhD²; Sarah-Jayne Blakemore, PhD³; Russel Viner, MD, PhD¹

¹*UCL Institute of Child Health;* ²*Birkbeck College, University of London;* ³*UCL Institute of Cognitive Neuroscience*

Purpose: Adolescence is a time of dramatic changes in a range of behaviors, which occur in tandem with changes in brain structure and function. These coincide with the physiological changes of puberty, but little research has focused on the possible contributing role of puberty. One important behavior emerging in adolescence is the increased propensity to make risky decisions. A prominent theory to explain this increased propensity for risk is the ‘dual systems’ model (Casey et al., 2008), where risky decisions result from a dissociation in the timing of the maturation of the limbic system and the prefrontal cortex, both regions involved in risky decision-making. The limbic system (incorporating the ventral striatum) is hypothesised to mature relatively early in adolescence, and is thought to be related to pubertal maturation. In contrast, the prefrontal cortex is thought to undergo more protracted development throughout adolescence. This study explores how developmental changes in brain function when performing a risk-taking fMRI (functional Magnetic Resonance Imaging) task are related to puberty, independently of chronological age.

Methods: Forty-five male participants aged 13-14 years underwent fMRI scanning whilst performing a risk-taking task (BART task, adapted from Lejuez et al., 2002). In this age range, there is normal variability in pubertal development, with individuals being at all stages of puberty from pre-puberty to having completed puberty. In the BART task, participants had to decide whether to inflate a virtual balloon on a screen. Successful inflation of the balloon resulted in the opportunity to earn more money, but risked the balloon popping and the money being lost. Stopping allowed the participants to save the money towards their final earnings. Participants completed four six-minute runs of the task. Pubertal stage was assessed using self-report measures including a pictorial Tanner stage and the Pubertal Developmental Scale (Petersen et al., 1988). Salivary hormone levels were collected to measure levels of

SAHM - AM14 Research Poster Presentations: Mental Health

Testosterone, Oestradiol and DHEA. Participants also completed validated self-report questionnaires of risk-taking, impulsivity and sensation-seeking.

Results: The analysis focused on a main effect, across the entire group, of active decision-making compared to the control condition in regions including the prefrontal cortex and limbic system, which are known to be involved in risky decision-making. We also investigated whether this activation was differentially related to puberty across regions, using both group-wise and regression analyses.

Conclusions: This study investigated a role for puberty in the functional development of brain regions involved in risky decision-making in males, and further informs the usefulness of the dual systems model of risk taking during adolescence.

Sources of Support: N/A