

CLiPPs

FALL 2021

CLiPPs (Current Literature in Pediatric Psychosomatics) is a pertinent article review through the AACAP Physically Ill Child Committee for psychosomatic clinicians from a range of medical science journals and literature. After a long pause, as has so often occurred for many things during the pandemic, we are excited to feature reviews on some critical literature over the past decade.

Additionally, if you're interested in becoming an assistant editor, please be in touch.

A call for reviewers and 2022 CLiPPs editorial board will separately go out to those involved in the previous academic year soon. Additionally, any interested in writing a pertinent article review, please be in touch, as well.

Multisite study of risk factors in pediatric patients with psychogenic nonepileptic seizures compared to their siblings

Background: Psychogenic non-epileptic seizures (PNES) is a type of functional neurological disorder in which the patient has seizure episodes that do not have epileptiform activity. While some PNES case series and examples have been reported, such as adolescent age group, female gender, comorbid depression and anxiety, and comorbidity of medical and psychiatric problems, the specific risk factors for PNES in the pediatric population have not been extensively studied. This study has the aim of identifying these risk factors by comparing children with PNES to their siblings without PNES across multiple study sites.

Methods: The multisite study included 55 individuals with a diagnosis of PNES and 35 siblings all aged 8-18 living with their parents. Diagnosis of PNES was confirmed video EEGs with absence of epileptiform activity during seizure episodes. Parents filled out a questionnaire about their child's past and current medical and psychiatric history, as well as family medical and psychiatric histories, and developmental and educational histories. Each child had a Schedule for Affective Disorders and Schizophrenia for school-age children-present and lifetime version (K-SADS-PL) interview. All children completed the Childhood Anxiety Sensitivity Index and the Children's Somatization Inventory. Cognitive and academic functioning was also assessed as well as coping, stressors, and history of adversities. Parenting was assessed using the Parker Parental Bonding Instrument.

Results: Patients with PNES had significantly more lifetime general medical, neurologic, emotional,

behavioral, and learning problems, and had more school absenteeism when compared to their siblings. They also had more psychiatric diagnoses including anxiety, depression, and PTSD but not ADHD or learning disorders. They had more physical symptoms, more likely to cope in isolation, and higher Childhood Anxiety Sensitivity index scores. The siblings had significantly higher WASI full scale IQ, vocabulary subscale, and WRAT Mathematics scores. The individuals with PNES had higher venting factor scores on the Children's Coping Questionnaire. The patients with PNES probands with epilepsy had significantly higher venting factor scores. Patients with PNES also reported experiencing more lifetime adversities and had a higher mean number of adversities than their siblings. They reported significantly more domestic or community violence, psychological abuse, and serious personal illness, surgery or medical procedure, but not physical and sexual abuse or loss. Somatopsychiatric (OR 15.1) and adversity component (OR=9.5) scores were significantly predictive differentiators between patients with PNES and their siblings.

Conclusion/Commentary: This study is unique in that it includes a control group that was matched on socioeconomic, race/ethnicity, and familial environment by being the siblings of those with PNES. This study used a principal component analysis to identify the interrelationships of the risk factors to differentiate PNES probands from their siblings and found that a somatopsychiatric component and an adversity component are highly significant predictors of PNES. The somatopsychiatric component includes the number of hospitalizations, number of emergency room visits, venting coping score, anxiety sensitivity total, number of KSADS psychiatric diagnoses, and number of neurologic problems, while the adversity component includes the number of psychotropic medications, number of adversities experienced, number of past emotional problems, and number of psychiatric diagnoses. The findings of significant increased anxiety sensitivity and somatization in patients compared to their siblings is consistent with what has been seen previously ([Salpekar et al., 2010](#)). In comparison to adult literature on PNES there was no statistically significant difference in the frequency of physical and sexual abuse in youth with PNES and controls ([Myers et al., 2013](#)).

Take-away: Youth with PNES have a distinct set of risk factors that can be screened for early diagnosis of PNES in individuals presenting with new seizures or poorly controlled seizures. A past history of illnesses, fearful misinterpretation of physical sensations, somatization, venting, and lifetime adversities increase the risk for pediatric PNES.

References:

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2. Myers, L., Perrine, K., Lancman, M., Fleming, M., Lancman, M., 2013. Psychological trauma in patients with psychogenic nonepileptic seizures: Trauma characteristics and those who develop PTSD. *Epilepsy & Behavior* 28(1), 121-126.

Reviewer: Gisela Sandoval, MD, PhD, Stanford University

Source: Plioplys, S., Doss, J., Siddarth, P., Bursch, D., Falcone, T., Forgey, M., Hinman, K., LaFrance Jr W.C., Laptook, R., Shaw, R.J., Weisbrot, D.M., Willis, M.D. and Caplan, R. A multisite controlled study of risk factors in pediatric psychogenic nonepileptic seizures. *Epilepsia*, 55(11):1739–1747, 2014. [link](#)

The TIDES Study

Background: Cystic Fibrosis (CF) is the most common genetic, life-limiting chronic disease in many populations. Treatment requires a daily and long-term commitment from the patient and their family, and the progressive worsening of this disease and frequent medical procedures is burdensome for patients and their caregivers. Psychological symptoms and disorders in patients and parents have been associated with decreased lung function, lower BMI, worse adherence, worse quality of life, more frequent hospitalization, and increased health care costs. In an inpatient study, 22% of youth and 11% of adults reported suicidal ideation. There may be demographic and medical predictors of psychological symptoms. Identifying patients with CF who have or are at high risk of depression/anxiety may help improve outcomes for the patient and reduce caregiver distress.

Methods: The International Depression Epidemiological Study group screened 1286 adolescent patients, 4739 adult patients, and 4102 caregivers in 9 countries (154 treatment centers) including the USA. Two screening measures were used- HADS and CES-D by most countries. Inclusion criteria were confirmed diagnosis of CF, age more than 12 years, screening during stable clinic visit. Patients who had received a solid organ transplant were excluded. Patients/ caregivers provided information about demographics and about pharmacological and psychological treatment of depression and anxiety. Indicators of physical health status in the past 6 months were recorded from medical charts.

Results: Up to 1/3 of patients with CF as well as their caregivers were experiencing significant anxiety and depression symptoms. Prevalence of depression and anxiety in patients increased with older age (adults > adolescents), female gender, being in treatment for psychiatric conditions, presence of psychiatric symptoms in a parent, lower lung function or BMI (severity of Cystic Fibrosis), being listed for transplant, and recent changes in health status (e.g., IV antibiotic treatment/ hemoptysis/ Pneumothorax). Prevalence of depression and anxiety in caregivers was higher in mothers (more than fathers). IV antibiotic treatment for the child increased the prevalence of symptoms in parents. The presence of anxiety symptoms increased the likelihood of depression. Those with highest severity ratings focused on hopefulness, self-esteem, and happiness. Somatic symptoms were not among the top concerns.

Conclusion/Commentary: This was the largest international screening study performed in a chronic respiratory disease which highlighted the high prevalence and impact of psychological symptoms in patients with CF. In response to the finding of this study and other reviews, a 22-member panel of experts was convened (International Committee on Mental Health in Cystic Fibrosis). This committee put forth a consensus statements for screening and treatment of Depression and Anxiety in patients

with CF. The U.S. screening guidelines recommend universal annual screening with GAD7 and PHQ9 screens and severity based treatment algorithms instructing combinations of psychoeducation, psychotherapy, and pharmacotherapy (SSRIs).

Take-Away: This study showed significant psychosocial disease burden and associations with outcome of CF physical illness. It brought about resounding change in the treatment of patients with CF across several countries, and it represents the most standardized psychosocial assessment and treatments in integrated care for children.

References:

1. Quittner AL, Abbott J, Georgiopoulos AM, Goldbeck L, Smith B, Hempstead SE, Marshall B, Sabadosa KA, Elborn S; International Committee on Mental Health; EPOS Trial Study Group. International Committee on Mental Health in Cystic Fibrosis: Cystic Fibrosis Foundation and European Cystic Fibrosis Society consensus statements for screening and treating depression and anxiety. *Thorax*. 2016 Jan;71(1):26-34. doi: 10.1136/thoraxjnl-2015-207488. Epub 2015 Oct 9. PMID: 26452630; PMCID: PMC4717439.
2. Garcia G, Snell C, Sawicki G, Simons LE. Mental Health Screening of Medically-Admitted Patients With Cystic Fibrosis. *Psychosomatics*. 2018 Mar-Apr;59(2):158-168. doi: 10.1016/j.psych.2017.08.010. Epub 2017 Aug 30. PMID: 28985975.

Reviewer: Sneha P. Jadhav, Kennedy Krieger Institute/ Johns Hopkins Medical Institutions.

Source: Quittner AL, Goldbeck L, Abbott J, Duff A, Lambrecht P, Solé A, Tibosch MM, Bergsten Brucefors A, Yüksel H, Catastini P, Blackwell L, Barker D. Prevalence of depression and anxiety in patients with cystic fibrosis and parent caregivers: results of The International Depression Epidemiological Study across nine countries. *Thorax*. 2014 Dec;69(12):1090-7. doi: 10.1136/thoraxjnl-2014-205983. Epub 2014 Sep 21. PMID: 25246663. [link](#)

Inpatient Readmission After Pediatric Mental Health Admissions to Medical Settings

Background: Admissions for mental health issues constitute the largest proportion of pediatric inpatient stays, exceeding admissions for asthma over the last couple of decades¹. These admissions contribute to a significant cost burden on health care systems¹. Readmission rates are an important focus for quality improvement in pediatric community hospitals. However, national level quality measures for readmission do not include pediatric mental health admissions. There is limited data available on rates and associated factors as well. This study looks at 30-day readmissions for children from a large national level data set and compares readmission rates by primary admission diagnosis (mental health vs non-mental health).

Methods: This is a retrospective cohort study of all children (ages 5-17) who were discharged from 1813 community hospitals (including both medical and psychiatric services) in 22 states, between January 1st and November 30th, 2014. Primary admission diagnosis (using ICD-9 codes, aggregated by DSM IV and V categories) was used to identify mental health admissions. Unplanned readmissions within 30 days for both groups were compared. Regression models were used to adjust for sociodemographic characteristics, primary diagnosis & comorbid conditions along with variation by hospital.

Results: 18.7% of initial admissions were for mental health admission with almost two thirds of these having no other medical comorbidities. Mood disorders (depression 60% and bipolar 10.9%) were the most common mental health diagnoses. Readmission rates for those with mental health admissions were higher (8% vs 6.2%; $p<0.001$) compared to non-mental health admissions even after adjusting for demographic characteristics and comorbidities. In multivariate analyses, readmission rates were comparatively higher for younger age, those with comorbid non-mental health conditions and those with public insurance. Among the various diagnoses, readmission was higher for those with psychosis and bipolar disorder compared to depression. Length of stay and costs for admission were also higher for those with psychosis. Since race/ethnicity data was not available for the whole data set, subgroup analysis was done from hospitalizations in New York state which showed higher rates for African American and Hispanic children. Rates are also varied significantly by hospital after adjustment for other variables.

Conclusion/Commentary: Findings quantify the rate of readmissions for pediatric mental health admissions. Previous literature in this topic has either looked at readmissions for mental health or for medical conditions. In addition to documenting the higher rates for readmissions for those with index mental health admissions, this paper also provides evidence for readmissions being related to complexity of illness (higher with comorbidities & variation by diagnosis) and sociodemographic factors (race/ethnicity and insurance type). These findings can help policy makers target those with higher complexity and focus on addressing disparities as a part of quality improvement. Variation by hospital is an area that needs to be explored further to help understand other environmental/resource factors contributing to readmissions. Recent literature has identified readmission rates as a flawed measure due to these factors and urged the development of study methodologies that look at episodes of illness informed by social determinants of health².

Take Away: Mental health conditions are the largest cause for pediatric inpatient admissions in recent years and lead to a higher risk of readmission when compared to other non-mental health reasons. The factors that lead to these readmissions are complex and need further study and attention from administrators/policy makers.

References:

1. Bardach NS, Coker TR, Zima BT, Murphy JM, Knapp P, Richardson LP, Edwall G, Mangione-Smith R. Common and costly hospitalizations for pediatric mental health disorders. *Pediatrics*. 2014 Apr 1;133(4):602-9.

2. Rosenau PT, Alverson BK. To readmission and beyond!. Pediatrics. 2018 Apr 1;141(4):e20180243.

Reviewer: Yasas Tanguturi, MD, MPH, Vanderbilt University Medical Center

Source: Feng JY, Toomey SL, Zaslavsky AM, Nakamura MM, Schuster MA. Readmission after pediatric mental health admissions. Pediatrics. 2017 Dec 1;140(6). [link](#)

Outcomes of an inpatient medical nutritional rehabilitation protocol in children and adolescents with eating disorders

Background and Objective: Patients with severe eating disorder (ED) sequelae require medical stabilization. Usual treatment in the past involved slow nutritional support in an inpatient medical setting while patient is monitored carefully for refeeding, followed by transition to intensive eating disorder treatment. Recent research suggests malnourished patients can be safely started on higher calorie diets with more rapid advancement without increased incidence of refeeding syndrome. Effective early weight gain is a positive predictor of remission. Family based therapy (FBT) has improved outcomes for pediatric ED patients but requires patients to be medically stable. Medical stabilization can be lengthy with delays in focused treatment for the ED. A nutritional rehabilitation protocol was formulated and implemented to improve treatment of patients with eating disorders during admission for medical stabilization that incorporates rapid nutritional support with simultaneous involvement of caregivers in the feeding process using FBT principles. Treatment objectives include reduced length of hospitalization and improved outcomes of ED treatment, including future remission.

Methods/Design: Description of protocol included development to standardize and coordinate care for eating disorder patients admitted for medical stabilization, creating an order set to standardize care provided by multiple specialists and clinical teams and provide more rapid nutritional support than was recommended in the past, and involve parents/caregivers early in treatment by exposing them to principles of FBT. All eating disorder patients admitted Oct. 2012 – Oct 2014 with an eating disorder requiring first time inpatient nutritional rehabilitation were included. Medical criteria for admission included bradycardia, hypotension, orthostasis, significant malnutrition (defined as <75% median BMI), acute food refusal, failure to thrive, syncope and electrolyte abnormalities. The malnutrition protocol was initiated within 24 hours of admission and hospitalization lasted at least 3 days. Eating disorder diagnoses were determined clinically, initially based on DSM-IV criteria and reassigned retrospectively after DSM-V was published. Patients were categorized by degree of malnutrition. Assessments performed on admission, at discharge, and four weeks post discharge were included in the study. Safety outcomes included clinical need for phosphorous, magnesium, and potassium supplementation, other evidence of refeeding, and readmissions occurring within a month of discharge.

Results: The protocol had positive outcomes during inpatient stay with gains maintained at 4 weeks post discharge. A variety of eating disorders were represented in the sample with 84% initially presenting as severely malnourished. Hospital length of stays were short. Caloric intake was increased rapidly without poor outcomes, and supplementation was rare. NGT feeding was relatively rare and psychotropic medication use was infrequent. Families were exposed to FBT during medical stabilization. Patients gained a sufficient amount of weight between admission and discharge with low need for supplementation. Inpatient results were sustained after discharge, with patients gaining more on average after discharge than during hospital stay. Few patients were readmitted during the study time period. Parents/caregivers were directly involved in care during hospital stay, so in theory were more prepared to continue to support patients after discharge. Most patients did not require a higher level of psychiatric care at discharge or follow-up.

Conclusions/Commentary: A cohesive protocol based on current evidence with higher caloric intake and more rapid advancement of feeding leads to shorter length of stay with sustained weight gain after discharge. The protocol helps standardize care for pediatric patients with a variety of eating disorders dealing with severe sequelae. It enables multidisciplinary teams to better support these patients and their families, but also requires multidisciplinary presence to ensure these multimodal treatments on a medical floor. Additionally, caregiver exposure to FBT concepts sooner than is possible with usual care may lead to improved adjustment to outpatient FBT care, and overall better long-term outcomes.

Take-away: Use of a standard protocol with goals of rapid and safe refeeding while involving parents early in direct care teaching FBT principles shortened length of hospital stays and may support higher chance for sustained remission.

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1. Couturier, J., Kimber, M. and Szatmari, P. (2013), Efficacy of family-based treatment for adolescents with eating disorders: A systematic review and meta-analysis. *Int. J. Eat. Disord.*, 46: 3-11.
2. Garber AK, Michihata N, Hetnal K, et al. A prospective examination of weight gain in hospitalized adolescents with anorexia nervosa on a recommended refeeding protocol. *J Adolesc Health* 2012;50.
3. Golden N.H., Keane-Miller C, Sainani K.L., Kapphahn C. Higher caloric intake in hospitalized adolescents with anorexia nervosa is associated with reduced length of stay and no increased rate of refeeding syndrome. *J Adolesc Health*. 2013; 53: 573-578

Reviewer: Julianne Jacobson, MD, USC/Children's Hospital Los Angeles, Los Angeles CA

Source: Peebles et al. Outcomes of an inpatient medical nutritional rehabilitation protocol in children and adolescents with eating disorders. *Journal of Eating Disorders* (2017) 5:7 DOI 10.1186/s40337-017-0134-6. [link](#)

CLiPPs Feedback

We appreciate any feedback for our young, developing review series.

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CLiPPs was created in 2015 and named at the AACAP Annual Conference during the Physically Ill Child Committee Meeting. *CLiPPs* thanks its reviewer team for their time and dedication educating colleagues.

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