

33

### **Risk and protective factors for persistent depressive symptoms among transgender and non-binary youth: A prospective cohort study**

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**OBJECTIVES/GOALS:** While most transgender and non-binary (TNB) youth experience improved mental health post-initiating gender-affirming hormones (GAH), some continue to experience persistent, significant depressive symptoms two years post-GAH. Importantly, few studies have examined this issue given the lack of existing longitudinal studies. **METHODS/STUDY POPULATION:** We aimed to identify intervenable factors predicting persistent clinical depressive symptoms (PD) among TNB youth two years post-initiation of GAH utilizing the Trans Youth Care U.S. Study, an ongoing, multisite, observational study of TNB youth from four major pediatric hospitals across the U.S. We compared TNB youth (ages 12-20 at baseline) with persisting depression symptoms (PD) two-years post-GAH (i.e., PD; N=59) and those youth without (non-PD; n=215). Logistic regression estimated the association between PD and risk (e.g., negative expectations) and protective factors (e.g., parental acceptance, self-efficacy), measured at baseline and longitudinally. A mixed-effects model compared the rate of change of these factors between PD and non-PD youth. Models controlled for birth sex. **RESULTS/ANTICIPATED RESULTS:** Participants (Mean age=16) identified as transmasculine, then transfeminine, followed by non-binary. PD youth had higher negative expectations at baseline and internalized transphobia by 2-years, while non-PD youth reported greater parental acceptance over 2-years. The odds of PD compared to non-PD decreased with increasing self-efficacy at baseline (OR=0.7, 95% CI:0.5-0.9), whereas negative expectation for the future was associated with increased odds (OR=1.3, 95% CI:0.9,1.8). Moreover, the odds of PD increased 50% with increased rate of change in negative expectations, and odds decreased 50% with increased rate of change in self-efficacy, after adjusting for baseline negative expectations and self-efficacy, respectively. **DISCUSSION/SIGNIFICANCE:** We identified key intervenable factors for mental health treatment for TNB youth with PD; specifically, negative expectations increased risk for PD while self-efficacy appeared to buffer against PD risk. These findings also support assessment of youth for negative expectations for the future conferring greater risk for later PD.

34

### **Use of health services and cancer screening among immigrant cancer survivors with second primary cancer**

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**OBJECTIVES/GOALS:** Due to clinical advances, cancer survivors are living longer but have an increased risk of a second primary cancer (SPC). This cross-sectional study aims to examine SPC prevalence in immigrant women and compare healthcare use (HCU) and cancer screening in immigrants with SPC versus (1) immigrants with a single cancer and (2) US-born women with SPC. **METHODS/STUDY POPULATION:** The study population will include adult women with breast/gynecologic primary cancer (PC) from the

2005, 2008, 2010, 2013, and 2015 National Health Interview Survey. First-generation immigrant or US-born status will be defined by region of birth. SPC includes diagnosis with a second cancer type  $\geq 1$  year after the initial PC diagnosis. We will compare the prevalence of  $\geq 1$  SPC in immigrant and US-born women. To evaluate HCU and cancer screening differences, we will assess socio-demographic and socioeconomic factors, risk behaviors, length of US residence, and citizenship status with descriptive statistics. In regression analyses, we will compare number of provider visits and cancer screening rates in immigrant women with SPC versus immigrants with PC alone and US-born women with SPC after matching by age and PC type. **RESULTS/ANTICIPATED RESULTS:** Disparities in cancer diagnosis, quality of care, receipt of recommended treatment, and screening rates among immigrants in the US are well documented. Therefore, we hypothesize that immigrant cancer survivors will have similar or higher rates of SPC compared to women born in the US with variations based on health status. We further hypothesize that immigrants with SPC will report lower rates of HCU after diagnosis of their first cancer and cancer screening compared to US-born women. However, we expect that immigrants with SPC will report similar or higher rates of HCU and cancer screening compared to immigrant women with PC alone. **DISCUSSION/SIGNIFICANCE:** To our knowledge, this study will be the first to describe SPC among immigrant cancer survivors in the US. This research will inform interventions to improve cancer care delivery and ultimately reduce SPC in immigrants with cancer.

35

### **Total-body symptom assessment in patients with idiopathic orthostatic intolerance to improve symptomatic management**

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**OBJECTIVES/GOALS:** Total-body symptom surveys among patients with idiopathic orthostatic intolerance (OI) at our referral center suggest that non-conventional OI symptoms, such as pelvic pain, impact quality of life. We seek to identify additional common yet unconventional symptoms reported during clinic visits to improve targeted symptom management. **METHODS/STUDY POPULATION:** Pelvic pain symptom surveys were completed by 178 patients age 18 and over with a chief complaint of OI. Pelvic pain prevalence was assessed using the International Pelvic Pain Society (IPPS) and Pelvic Congestion Syndrome (PCS) surveys. Expanding on this work, surveys will be distributed to a population with the same inclusion criteria but with a broader symptom scope, chosen based on patient reports during clinical encounters—including presence of migraines, cold digits (Raynaud's phenomenon), anxiety and depression. The Migraine Disability Assessment Test (MIDAS), modified Assessment of Systemic Sclerosis-Associated Raynaud's Phenomenon (ASRAP), Generalized Anxiety Disorder-7 (GAD-7), and Patient Health Questionnaire-9 (PHQ-9) surveys, respectively, will be used to obtain symptom prevalence. **RESULTS/ANTICIPATED RESULTS:** Of the pelvic pain survey participants, pelvic pain was endorsed by 144/178 (80.9%) of respondents. Prevalence of the additional surveyed symptoms—migraines, cold digits, anxiety, and depression—will similarly be assessed. Given that in our referral clinic we have observed a trend