57.

PSYCHOSOCIAL DISTRESS AND RESILIENCE AMONG COLLEGE STUDENTS WITH TYPE 1 DIABETES

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Purpose: Young adults (YA) with Type 1 Diabetes (T1D) struggle to achieve glycemic control and the increased stress/distress during college may complicate disease control while resilience may be important for promoting disease management. We sought to quantify psychosocial distress and resilience among college students with T1D, and estimate the impact on self-management behaviors and glycemic control.

Methods: Data are from 138 respondents to a multi-national, web-based study of college students (ages 17-25 years) with T1D, recruited via a variety of social media platforms (e.g., College Diabetes Network Facebook, Twitter) and direct outreach (e.g., organization newsletter). Participants were enrolled in a comparative effectiveness trial of web-based delivery of health promotion messaging and asked to complete validated measures of psychosocial distress and resilience, diabetes self-management and burden, most recent hemoglobin A1c (HbA1c), and sociodemographics at baseline. Multivariable regression was used to model baseline reports of HbA1c, frequency of daily blood glucose testing, and receipt of diabetes care, as a function of burden and resilience while adjusting for confounders.

Results: Participants were from 85 universities across 30 US states and Canada. Participants were 20.5 years old on average (SD=1.5), 80.4% female, 82.6% white non-Hispanic, an average of 10.9 years old at diagnosis (SD=5.2), 84.1% were pump users and 60.1% used continuous glucose monitors (CGM). 16.7% of YA screened positive for depressive symptoms and 31.9% screened positive for generalized anxiety; participants reported high levels of grit (3.9±0.6, max of 5) and self-efficacy (7.7±1.7, max of 10), and moderate diabetes acceptance (58.4±10.0, max of 72) on average. Per ADA recommendations, 44.2% tested their blood sugar ≥5 times per day, 65.9% had ≥3 HbA1c tests in the past year, with an average last HbA1c of 7.6 (SD=1.3), and 29.7% received all five other recommended annual screening and preventive services. Multivariable analyses revealed that diabetes self-efficacy was the most important predictor, demonstrating associations with receiving the recommended number of HbA1c tests per year (OR: 1.27, 95%CI: 1.02-1.59 per 1-unit increase in self-efficacy) and other key diabetes screening tests (OR: 1.36, 95%CI: 1.06-1.74), greater frequency of daily blood glucose testing (OR: 1.27, 95%CI: 1.05-1.54), and better/lower HbA1c (-0.27 units, $p<0.001$). Greater diabetes burden was associated with lower odds of receiving key diabetes screening tests (OR: 0.51, 95%CI: 0.32-0.82 per 1-SD increase in burden) and worse/higher HbA1c (+0.31 units, $p<0.01$). Depressive symptoms were associated with lower odds of receiving the recommended number of HbA1c tests (OR: 0.78, 95%CI: 0.60-0.99 per 1-unit increase on the PHQ-2).

Conclusions: University students with T1D reported high psychosocial distress and mental health concerns and did not meet many professional standards for recommended care and management. Those with high distress or low resilience experience higher HbA1c and are less likely to receive recommended diabetes care. In order to improve the management of YA with T1D, particularly during college, providers should seek to discuss psychosocial concerns and apply interventions aimed at strengthening resilience.

Sources of Support: Boston Children’s Hospital Awards Committee Pilot #20140273, Mentored Career Development Award AHRQ K12HS022986

58.

EMOTIONAL SUPPORT FROM SOCIAL MEDIA AND IN-PERSON RELATIONSHIPS: ASSOCIATIONS WITH DEPRESSIVE SYMPTOMS AMONG YOUNG ADULTS

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Purpose: Social support has a profound impact on mental health and health behavior. One key component of social support—emotional support—has been shown to be the most protective against mental health conditions such as depression. Several traditional measures of emotional support exist. However, none of these measures specifically addresses the proliferating use of social media (SM) as a source of support. While SM has the potential to provide unlimited quantity of social connections, it is unclear as to whether these connections offer the same quality of support that influences well-being. Therefore, the objectives of this study were (1) to determine if SM-based emotional support is a distinct construct from in-person emotional support, and (2) to test the independent associations between each type of support and depressive symptoms among a cohort of young adults.

Methods: In March 2018, we collected data from a national sample of 442 young adults ages 18 to 24 using Qualtrics Panel Services. Participants completed an online survey about SM use and mental health outcomes. We assessed in-person emotional support with the brief Patient-Reported Outcomes Measurement Information System (PROMIS) emotional support scale. We assessed SM-based emotional support using a four-item measure adapted from the PROMIS in-person emotional support scale. Depressive symptoms were assessed using the validated nine-item Patient Health Questionnaire (PHQ-9). We performed factor analysis (FA) using the principal-component factor method with promax rotation to determine the underlying factor structure of all items and to develop composite scales. We then used multivariable logistic regression to examine the association between each of the resulting emotional support scales and depressive symptoms. Primary models controlled for age, sex, race/ethnicity, relationship status, living situation, education, adverse childhood events, and time per day spent on SM. We also incorporated survey weights to adjust for potential under- or over- sampling.

Results: FA revealed two distinct constructs—in-person and SM-based emotional support—with eigenvalues of 3.68 and 3.23, respectively. These two factors explained 86% of the variance. In multivariable models, in-person emotional support was associated with a 36% decrease (AOR = 0.64, 95% CI = 0.49-0.82) in odds of elevated depressive symptoms for each 1-unit increase on the scale. However, SM-based emotional support was not significantly associated with depression (AOR = 1.07, 95% CI = 0.86-1.34).

Conclusions: These data indicate that emotional support derived in-person and emotional support derived via SM are two distinct constructs. Although in-person emotional support was strongly associated with decreased depressive symptomology, emotional support related to SM was not. The accessibility of SM makes it an inviting option for connecting with others, particularly for individuals who are geographically or socially isolated, mobility-, or time-impaired. However, these findings indicate that in-person and SM connections are not equally valuable in terms of protection against depression risk. Future longitudinal and qualitative studies may help further elucidate these associations.

Sources of Support: The Fine Foundation.

59.

HOSPITALIZATIONS AMONG PERSONS UNDER 18 YEARS OF AGE WHEN EXPOSED TO THE SEPTEMBER 11, 2001 WORLD TRADE CENTER TERRORIST ATTACK

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Purpose: Much of the literature on hospitalizations post-September 11, 2001 (9/11) focuses on adults. These studies reported that 9/11-exposures and 9/11 post-traumatic stress disorder (PTSD) were associated with increased risk of hospitalization for heart disease, asthma, and drug or alcohol abuse. Previous research among children exposed to 9/11 found that exposures such as being caught in the dust cloud, witnessing horrific events, or having PTSD were associated with asthma, behavior problems, school-functioning, and substance use. The objectives of this study were to describe the patterns of hospitalizations among enrollees in the World Trade Center Health Registry (WTCHR) who were under 18 years of age on 9/11 and to assess whether 9/11-related exposures or PTSD were associated with increased odds of hospitalization.

Methods: Data for enrollees who were under 18 years of age on 9/11 in the WTCHR, a prospective cohort study, were linked to New York State administrative hospitalization data to identify hospitalizations from enrollment (2003-2004) to December 31, 2016. PTSD was defined as parent report of the child having at least six of eight 9/11-specific stress symptoms. Exposure to the dust cloud was defined has parent report of the child being caught in the dust and debris cloud resulting from collapsing buildings. Logistic regression, controlling for age, race/ethnicity, and sex, was used to analyze the associations between hospitalization, 9/11-related exposure, and PTSD. Cochran-Armitage Trend Test was used to examine trends between number of PTSD symptoms and hospitalization.

Results: Of 3,248 total enrollees under 18 years of age there were 457 enrollees with one or more hospitalizations (14.1%). There were 326 (71.3%) enrollees who had at more than 1 hospitalization. Among the 2,194 hospitalizations, 188 (8.6%) were for respiratory conditions, including asthma, sinusitis, and laryngitis, and 212 (9.7%) were for mental health or substance use conditions. Exposure to the dust cloud was associated with hospitalization for respiratory conditions (adjusted odds ratio (AOR): 1.5, 95% confidence interval (CI): 1.0-2.2). PTSD was significantly associated with hospitalization for mental health or substance use conditions (AOR: 2.8, 95% CI: 1.1-7.1). There was a significant trend in the relationship between number of PTSD symptoms and respiratory conditions ($p=0.0001$) and mental health/substance use ($p=0.0003$) hospitalizations.

Conclusions: Dust cloud exposure on 9/11 and PTSD are potentially associated with respiratory and mental health/substance use hospitalizations among those exposed to 9/11 as children. Continued monitoring of this population will be important to understanding the long-term effects of 9/11-exposure.

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60.

PSYCHOLOGICAL PATHWAY FROM OBESITY-RELATED STIGMA TO DEPRESSION VIA INTERNALIZED STIGMA AND SELF-ESTEEM AMONG ADOLESCENTS IN TAIWAN

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Purpose: Weight-related stigma is the most prevalent type of discrimination in adolescents in Taiwan. However, studies that examined how public stigma is internalized in adolescents were rarely conducted in an Asian context. The objective of this research was to examine the pathway from public stigma, perceived stigma to depression in adolescents via internalized stigma and self-esteem.

Methods: Adolescents in grade 7 through 9 from a junior high school in Changhua County in Taiwan completed self-administered surveys during March to July in 2018. Adolescents were asked regarding depressive symptoms, obesity-related perceived stigma and internalized stigma. Social network data was retrieved by asking adolescents to report a maximum of five best friends from a student roster of the whole school, and was used to calculate the level of public stigma for each adolescent. Structural equation modeling was used to fit the pathway model. The pathway was first analyzed with the full sample and then stratified by actual and perceived weight status.

Results: Our final analytic sample consisted of 457 adolescents. The pathway model suggested an acceptable model fit (TLI=0.98, CFI=1.00, RMSEA=0.03). Public stigma was not significantly associated with perceived stigma. Significant pathways from perceived stigma to internalized stigma (b=0.68, p<.05) and to self-esteem (b=-0.19, p<.05) emerged. Self-esteem was significantly linked to depression (b=-0.61, p<.05), but the link between internalized stigma and depression did not exist. Gender differences of the pathway were not observed.

Conclusions: Self-esteem is a more prominent mediator than internalized stigma in the pathway from perceived weight stigma to depression in our adolescent sample. Although weight-related discrimination may not affect depression via internalized obesity stigma, it impeded overall self-esteem for adolescents and in turn, led to depression. Interventions that aim to improve depressive symptom in adolescents suffers from obesity-related stigma should seek to improve their overall self-esteem.

Sources of Support: Self-esteem is a more prominent mediator than internalized stigma in the pathway from perceived weight stigma to depression in our adolescent sample. Although weight-related discrimination may not affect depression via internalized obesity stigma, it impe

61.

ADOLESCENT DEVELOPMENTAL ASSETS AND LONGITUDINAL PHYSICAL AND PSYCHOSOCIAL HEALTH OUTCOMES: ANALYSIS FROM A TAIWANESE COHORT STUDY

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Purpose: Developmental asset-based youth development has been proposed to predict health behaviors and psychological well-being in adolescents. This study aims to extend the current knowledge regarding the effects of positive youth development on physical and psychosocial health outcomes in an Asian population using a large longitudinal sample.

Methods: Four waves of data were retrieved from the Taiwan Youth Project that comprised a longitudinal cohort of adolescents (N = 2688) surveyed at grades 6, 7, 9, and 12. We used principal component analysis to validate a set of youth developmental assets that was constructed using 35 items selected from the relevant questions in the wave 1. Outcomes included standardized scores of body mass index, self-rated health and happiness, depressive symptomology and health behaviors in the subsequent waves. Generalized estimating equation analysis was applied to assess the impact of developmental assets on these repeatedly measured outcome variables.

Results: The factor analysis extracted eight factors of the constructed scale, of which 4 were related to external and the other 4 related to internal assets. As compared to those with the highest quintile level of developmental assets, individual with the lowest quintile level were likely to rate themselves unhealthy (ß=0.46 [0.37, 0.54]) and unhappy (0.51 [0.46, 0.58]) and report more depressive symptomatology (4.55 [3.67, 5.44]) and deviant behaviors (0.61 [0.43, 0.78]). No association was found between and body mass index and developmental asset scores.

Conclusions: The results conclude a longitudinal association between youth developmental assets and psychosocial health outcomes in Taiwanese youth. How positive youth development is related to long-term physical condition requires further research.

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62.

HEALTH-RELATED QUALITY OF LIFE OF EATING DISORDERS IN CHILEAN ADOLESCENTS

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Purpose: The aim of the current study was to investigate psychosocial functioning in different subtypes of eating disorders (ED) , within a sample of adolescents receiving outpatient treatment in eating disorders centers in Chile.

Methods: A cross-sectional exploratory design study, in adolescents recruited in eating disorders treatment centers in Santiago, Chile. All patients met DSM-5 criteria. Patients with substance abuse or with other psychiatric disorders were excluded. After a written consent was obtained, an individually questionnaire with demographical and disease information was filled. Participants had to complete the Clinical Impairment Assessment Questionnaire (CIA), Version 3.0 (Bohn & Fairburn, 2008), a 16-item self - report questionnaire of functional impairment secondary to ED psychopathology during the past 28 days. Items investigate impairment in 3 individual domains of life (personal, social and cognitive).

Results: 63 patients (76.2% women) with ED were recruited between March 2017 and July 2018, with a mean age of 16.8 years (SD ± 2.56). Diagnoses included Anorexia Nervosa: 40 (63.5%) , Bulimia Nervosa: 13 (20.6%) , Avoidant Restrictive Eating Disorder: 4 (6.3%), Unspecified Eating Disorder: 3 (4.7%), and Binge Eating: 1 (1.6%). A high level of psychosocial impairment (personal, social and cognitive) was found in ED adolescents studied, with a CIA score = 25.8 ± 12.25 (impairment score defined ≥ 16). Although, there was no significant differences in life domain specific -impairment between different types of ED, CIA global scores were higher in patients with BED, ARFID and AN purging type. No significant difference was found between psychosocial impairment and BMI, delay in diagnosis, medical sequelae, and number of previous treatment.

Conclusions: Our findings suggest that chilean adolescents with ED have a high level of psychosocial impairment independent of the type of ED or length of disease. This ED related impairment demonstrates the need to implement long-term care and follow-up services for adolescents with ED, with an emphasis on long-term psychosocial functioning. To accomplish this, and as a first step, there is a need to include mental health coverage by private insurance companies, and improve public mental health services in Chile.

Sources of Support: This study was funded by the Division of Pediatrics, Pontificia Universidad Católica de Chile.

63.

ASSOCIATION OF HORMONAL CONTRACEPTION INITIATION WITH SUBSEQUENT DEPRESSION DIAGNOSIS AND ANTIDEPRESSANT USE IN UNITED STATES MILITARY HEALTH SYSTEM BENEFICIARIES: A COHORT STUDY

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Purpose: Examine the association of hormonal contraception initiation with subsequent depression diagnoses or Selective Serotonin Reuptake Inhibitor (SSRI) use among women enrolled in the United States Military Healthcare System (MHS) before and after accounting for the effect of healthcare utilization.

Methods: Secondary analysis of insurance records from women ages 12-34 years old with 12 months of previous enrollment in the MHS during September 2014. We excluded women who were pregnant, using contraception, diagnosed with a mood disorder, or prescribed SSRIs in the prior 12 months. We used Kaplan-Meier and Cox Proportional Hazards regression analysis to assess the relationship of contraceptive initiation during September 2014 with antidepressant use or diagnosis with a depressive disorder during the subsequent 12 months. Women were censored from further analysis if they discontinued the contraceptive method initiated, started a new contraceptive method, became pregnant, or terminated enrollment in TRICARE Prime. We used 2 different control groups for our analyses. Control Group 1 (n=269,078) included all eligible women who did not start hormonal contraception. Control Group 2 (n=94,700) included only enrollees that accessed any inpatient, outpatient, or pharmacy services, excluding contraception, during September 2014.

Results: Contraception was initiated by 3,615 women (Pill/Patch/Ring: 84.9%, Intrauterine: 5.4%, Implant: 5.1%, Injectable: 4.5%). The most common progestin types used were Norgestimate (27.6%) and Levonorgestrel (16.4%). The depression diagnosis rate among women who started an Implant (12.9%), Intrauterine Contraception (11.2%), or a Pill/Patch/Ring (8.7%) was significantly higher than the rate in Control Group 1 (6.2%) but not Control Group 2 (9.0%). The SSRI rate was significantly higher among women who initiated intrauterine contraception (10.3%) or a Pill/Patch/Ring (5.6%) when compared to Control Group 1 (4.6%) but not Control Group 2 (6.8%). In multivariable analyses, adjusting for the effect of demographic factors and progestin type used, a higher hazard of depression diagnoses and SSRI use was seen among women with a history of military service and/or a junior enlisted insurance sponsor. Women aged 12- 19 years old were more likely to be diagnosed with depression (HR:1.12 (95%CI:1.05-1.19), $p<0.001$) and less likely to be started on SSRIs (0.63 (0.58-0.68), $p<0.001$). Compared to Control Group 1, higher depression rates were seen among women using Norgestimate, Levonorgestrel, Etonogestrel, or Norelgestromin. Compared to Control Group 2, Levonorgestrel and Norelgestromin use was associated with higher rates of depression (1.42 (1.05-1.92), $p=0.024$ and 1.93 (1.04-3.60), $p=0.037$), while use of Norethindrone containing contraception was protective (0.21 (0.05-0.85), $p=0.028$). Compared to Control Group 1, use of Norgestimate, Levonorgestrel, or Nogestrel was associated with a higher hazard of SSRI use. However, these associations did not persist when analyses were restricted to Control Group 2.

Conclusions: Similar to other studies, our initial analysis demonstrated an association of initiating hormonal contraception with subsequent depression diagnoses or SSRI use. However, this association decreased or disappeared when we restricted our analysis to women who accessed care. This suggests that healthcare utilization rates may influence the association between contraception use and depression seen in previous studies. Further analysis is needed to confirm these findings.

Sources of Support: None

64.

ADVERSE MENTAL HEALTH OUTCOMES IN A NATIONALLY REPRESENTATIVE SAMPLE OF HIGH SCHOOL STUDENTS USING E-CIGARETTES AND MARIJUANA

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Purpose: The use and availability of nicotine-containing e-cigarettes has increased dramatically among adolescents in the past five years alongside a steady increase in daily use of marijuana, contrasting with decreasing rates of use of most other substances in this population. The past decade has also seen a historic rise in depression and suicidal ideation among adolescents. Risks of e-cigarette and marijuana use in adolescents have been described, but little is known about how use of these substances may affect mental health in this population. Understanding associations among these factors may be helpful for characterizing behaviors that could signify risk of adverse mental health outcomes. In this study, we describe the associations between e-cigarette and marijuana use and depressive symptoms and suicidality in a large nationally representative sample of high school students.

Methods: We used data from the two most recent waves (2015 and 2017) of the national Youth Risk Behavior Survey. This survey was distributed to students in grades 9 to 12 in the 50 American states and the District of Columbia selected through a 3-stage cluster sample design. Our study sample (N=26,902) included only participants with complete information for age, sex (reported as binary male/female), race/ethnicity and exposure to e-cigarettes and marijuana (88.52% of survey respondents). Participants were divided into four exposure groups for e-cigarette and marijuana use: non-users, e-cigarette-only users, marijuana-only users and dual users. We compared rates of e-cigarette and marijuana use for different student demographics and performed multivariate logistic regressions to explore the associations between e-cigarette and marijuana use and depressive symptoms (feeling sad or hopeless for two weeks or more) and suicidality (seriously consider attempting suicide) in the past year. Regression models were adjusted for survey year, age, sex, race/ethnicity, sexual orientation and use of alcohol and other substances.

Results: Participants were White (54.57%), Hispanic (22.13%) or African American (13.24%) and 49.99% were female. E-cigarette-only use was reported in 9.07% of participants, marijuana-only use in 9.68%, and dual e-cigarette/marijuana use in 10.30%. Youth who identified as gay, lesbian, bisexual or "unsure" had significantly higher rates of marijuana-only use (14.76%) and dual use (15.24%) but were less likely to use e-cigarettes alone than heterosexual youth ($p<0.001$). Multivariate regressions revealed that e-cigarette-only users had higher odds than non-users of reporting depressive symptoms in the past year (AOR 1.42, 95% CI 1.24-1.64), which was also observed in marijuana-only users (AOR 1.54, 95% CI 1.32-1.80) and dual users (1.68, 95% CI 1.45-1.94). Similarly, e-cigarette-only users had higher odds than non-users of reporting seriously considering attempting suicide in the past year (AOR 1.28, 95% CI 1.06-1.54), which was also observed in marijuana-only users (AOR 1.30, 95% CI 1.09-1.55) and dual users (1.34, 95% CI 1.13-1.59).

Conclusions: We found increased risks of depressive symptoms and suicidal ideation in all three user categories (e-cigarette-only, marijuana-only and dual e-cigarette/marijuana users). Considering the availability and high prevalence of use of e-cigarettes and marijuana among adolescents, there is a need for effective screening, prevention and intervention strategies which could help avert adverse mental health outcomes in this population.

Sources of Support: None