

## Introduction

Primary care physicians are routinely the first providers for adolescents experiencing psychiatric symptoms, including depression. In 2016, an estimated 12.8% of adolescents between the ages 12-17 were reported to have had at least one major depressive episode. The same year, updated recommendations calling for routine screening for Major Depressive Disorder (MDD) in adolescents age 12-17 were made by the US Preventative Services Task Force (USPSTF). While the USPSTF does not provide any guidance regarding recommended screening intervals, the American Academy of Pediatrics (AAP) Bright Futures guidelines recommends a standardized depression screening at every 12-17-year-old health supervision visit.

The Patient Health Questionnaire (PHQ-9) is a commonly used screening tool validated and published in 2001; and consists of a 9-question form completed by adolescents based on self-reported symptoms that assess both the presence and severity of depression. Major depression is diagnosed if a score of 5 or more is attained from the 9 symptom criteria, the reported symptoms have been present at least "more than half the days" in the past 2 weeks, and 1 of the symptoms is depressed mood or anhedonia. Screening for MDD is especially important during times of disasters as children are at risk for developing post event exacerbation of depressive symptoms. Studies have shown an increased relative risk for self-reported depression symptoms in pediatric patients who have experienced adverse childhood events. In a study of 8000 students in grades 4-12 attending New York Public schools 6 months after the September 11, 2001 terrorist attacks, 27% met criteria for at least 1 psychiatric disorder. In addition, there is strong evidence that the experience of childhood adversities will produce mental health impacts that persist into adulthood. Therefore, early identification and intervention is beneficial.

The SARS-COV2 pandemic of 2019-2020 created numerous possible stressors for adolescents including the potential for family financial insecurities, family illness or death, the transition to home schooling and discontinuation of previously enjoyed group athletics and activities. The purpose of this study is to compare PHQ-9 self-reported scores prior to the SARS-COV2 pandemic to PHQ-9 self-reported scores during the pandemic.

## Aims and Objectives

1) The purpose of this study is to compare PHQ-9 scores from the pre-pandemic and pandemic period 2) Data will be collected on age, gender, race, PHQ-9 questionnaire results and a new diagnosis of depression at the visit

## Methods

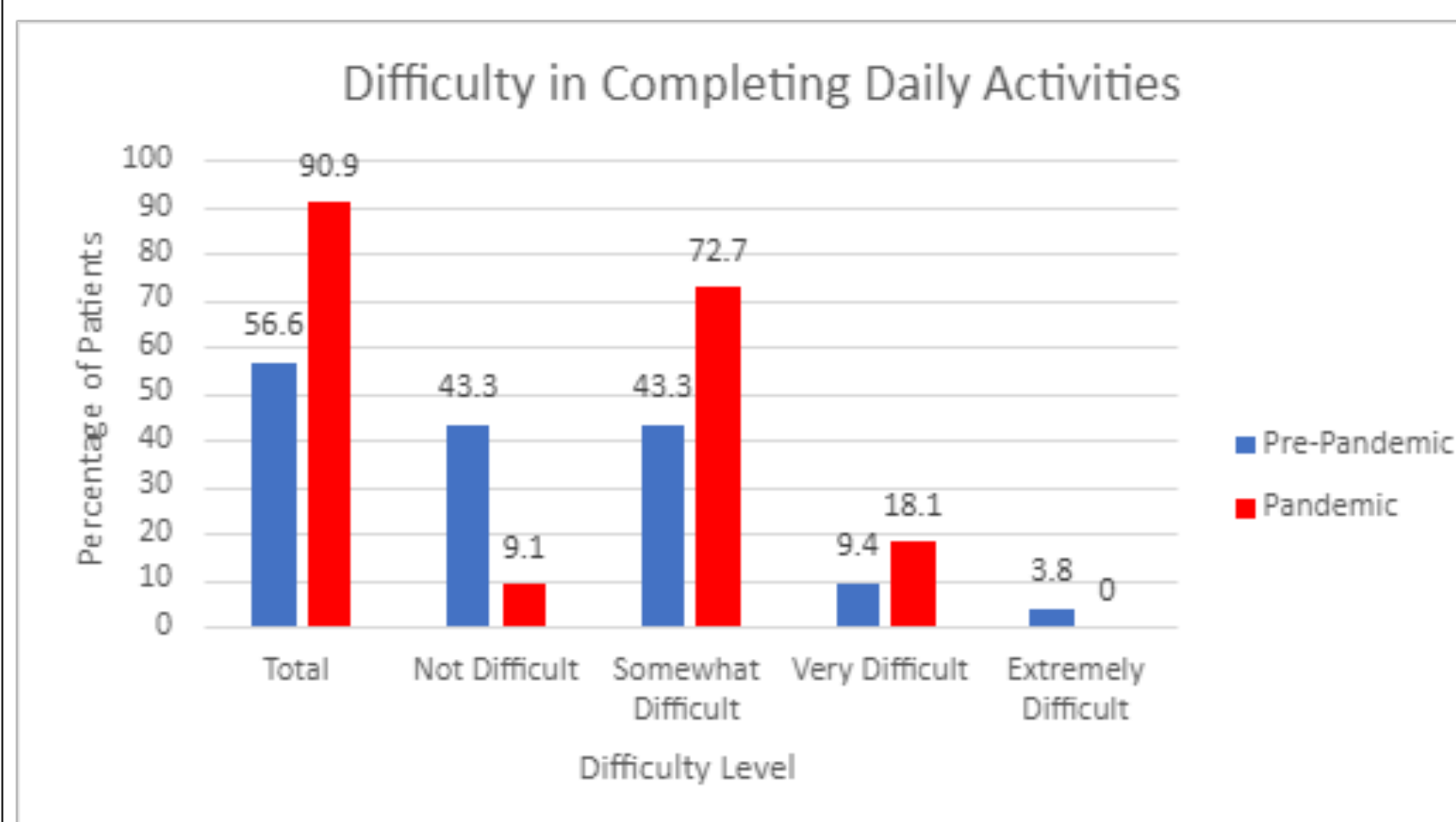
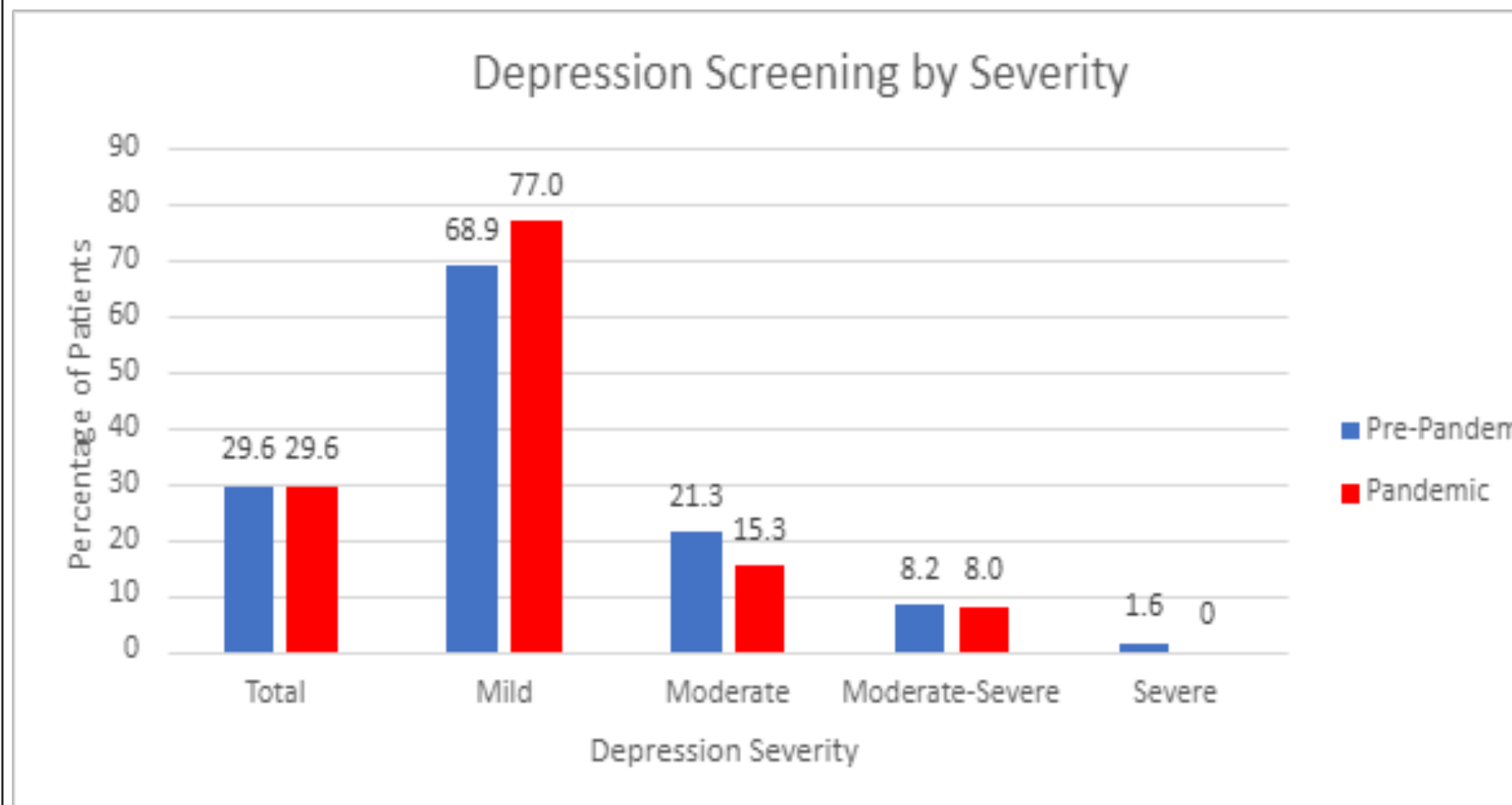
This IRB approved study conducted a retrospective chart review of adolescents aged 12-17 whom attended Beaumont Children's Hospital Pediatric Outpatient Clinic between January 1, 2015 and March 22, 2020. Inclusion criteria for the study included adolescent patients age 12 years to 17 years, without a previously established diagnosis of a mood disorder and not receiving treatment for a mood disorder, who completed a PHQ-9. Exclusion criteria were adolescents with a previously established diagnosis of a mood disorder, and/or those adolescent patients receiving treatment for a mood disorder. Each chart was reviewed for the presence of a previously completed PHQ-9 in the media section of the electronic record or encounter documentation.

For those adolescents with a completed PHQ-9 during the defined period prior to the SARS-COV2, each of their responses to the 9 questions was extracted from the chart and compiled into an Excel data form. Each MRN was utilized one time per calendar year. If multiple PHQ-9s exist for a single adolescent patient the highest score was utilized. The cumulative scores of each of the nine questions were interpreted for presence of depression as well as the rates of mild, moderate, or severe depression. The severity of depression will be determined directly from the published PHQ-9 diagnostic algorithm. Age, gender, and ethnicity of each patient was included, and all patient identifying health information was protected. As a second step, we prospectively collected the same data points from completed PHQ-9 self-reported questionnaires at adolescent visits after March 23, 2020, the date the Michigan Shelter in Place order were initiated.

After collection of the PHQ-9 data points prior to and during the SARS-COV2 pandemic, we directly compared the distribution of overall PHQ-9 scores as well as rates and severity of depression between the two groups.

## Results

- 381 patient charts were reviewed and 250 met inclusion criteria
- During the pre-pandemic period, 61/206 (29.6%) screened positive for depression. Depression severity: 42/61 (68.9%) mild, 13/61 (21.3%) moderate, 5/61 (8.2%) moderate-severe and 1/61 (1.6%) severe.
- During the pandemic period, 13/44 (29.6%) of patients screened positive for depression. Depression severity: 10/13 (77%) mild, 2/13 (15%) moderate, 1/13 (8%) moderate-severe and 0 severe.
- Among patients who screened positive for depression and completed questions assessing symptom severity, 56.6% in the pre-pandemic group and 90.9% in the pandemic group noted difficulty in completing daily activities due to depression symptoms.



## Conclusions

This study did not show an increased incidence of new onset depression amongst adolescents during the pandemic, when screening was performed in the outpatient clinic setting using the PHQ-9. Amongst all teenagers who screened positive for depression, those adolescents screened during the pandemic related more frequent difficulty in daily activities.

The population we serve at the Beaumont Children's Hospital Outpatient Clinic come from historically underserved communities in metro Detroit. Previous research has shown that social determinants of risk are closely associated with the presence of mood disorders. Additionally, many patients experienced increasing barriers to accessing routine healthcare and the symptoms of mood disorders negatively impact health-seeking behaviors. Our population did, however develop post-event exacerbation of depressive symptoms based on the observation that they had increasing difficulty performing daily activities.

## References

1. Mullen S. Major depressive disorder in children and adolescents. *Ment Health Clin.* 2018;8(6):275-283.
2. Siu AL. Screening for Depression in Children and Adolescents: US Preventative Services Task Force Recommendation Statement. *Pediatrics.* 2016;137(3).
3. Hagan JF, Shaw JS, Duncan PM. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents.* 4th Edition. American Academy of Pediatrics; 2017.
4. Kroenke K, Spitzer RL, Williams JB. The PHQ-9 Validity of a Brief Depression Severity Measure. *Journal of General Internal Medicine.* 2001;16:606-613.
5. Disaster Preparedness Advisory Council; Committee on Pediatric Emergency Medicine. Ensuring the Health of Children in Disasters. *Pediatrics.* 2015;136:e1407.
6. Blum RW, Li M, Naranjo-Rivera G. Measuring Adverse Child Experiences Among Young Adolescents Globally: Relationships With Depressive Symptoms and Violence Perpetration. *Journal of Adolescent Health.* 2019;65:86-93.
7. Schonfeld DJ, Demaria, T; Disaster Preparedness Advisory Council and Committee on Psychological Aspects of Child and Family Health. Providing Psychosocial Support To Children and Families in the Aftermath of Disasters and Crises. *Pediatrics* 2015;136:e1120.
8. Schilling EA, Aseltine RH, Gore S. Adverse childhood experiences and mental health in young adults: a longitudinal survey. *BMC Public Health.* 2007;7.
9. Executive Order 2020-21. The Office of Governor Whitmer. [www.michigan.gov/whitmer](http://www.michigan.gov/whitmer)