

EVIDENCE-BASED MEDICINE INFOSHEET: EPIDEMIOLOGY AND HEALTH SYSTEMS

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Review completed by: [Trong Phat Do (MS2) Chloe Jensen (MS3), Swetha Maddipudi (MS4)]

Peer Review by: [Dr. Jason Rosenfeld]

Key topic areas / questions identified:

What indirect effects has the pandemic had on physical health? What effects has the pandemic had on domestic violence and abuse and gender inequity? What effects has the pandemic had on mental health and substance usage? What effects has the pandemic had on childhood immunizations?

Key Findings:

Food security

- Food insecurity rates in the US have doubled from 18% to 35% during the pandemic.¹
 - Previous large observational studies suggest that living in food poverty increases the risk of developing childhood asthma, and that parents of children with CF are twice as likely to be living in food insecurity.¹
 - Self-reported food security rates among two cohorts of low income Latinx families in the San Francisco Bay area dropped from 76.9-80% in 2019 to 34.2-38.1% between May and September 2020.²⁵

Non-communicable Diseases & Life Expectancy

- Adult post-COVID-19 patients referred for rehabilitation services reported lower physical health and being less able to engage in physical activities and activities of daily living when compared to control patients participating in a cancer rehabilitation program. COVID-19 patients also used much more health-care resources than control patients.⁴⁴
- 75% of countries surveyed by the World Health Organization reported a considerable degree of disruption to noncommunicable disease services.²
 - The CDC reported that by June 30th, 41% of US adults had delayed or avoided care due to the pandemic, including 12% who delayed or avoided urgent or emergency care.²⁴
 - During the pandemic, there have been fewer patients admitted for strokes and myocardial infarctions, likely due to public health messages for elderly patients to stay home rather than decreased incidence.³
 - The duration of lockdown is proportional to uncontrolled glycemia and diabetic complications.³
- Children may experience unhealthy weight gain due to school closures related to the pandemic.⁴
 - Unhealthy weight gain may be related to increased food insecurity caused by the pandemic or related to decreased physical activity because of closures and loss of physical education classes.⁴
 - A CDC analysis of children hospitalized with COVID-19 from 14 states found that obesity was the most prevalent underlying condition (37.8%).⁵

- The 2020 life expectancy of the US general population is expected to decrease by 1.41 years, returning to 2003 levels.⁶ The reduction is most pronounced among Black and Hispanic populations.⁶
 - There is an estimated 50% increase in the Black-white life expectancy gap, undoing 20 years of progress towards closing the gap.⁶
 - One research group predicts that the health effects of the pandemic will reverse over 10 years of progress made in closing the Black–White gap in life expectancy and reduce the previous Latino mortality advantage by over 70%.³⁶

Mental Health

- Psychiatric symptoms such as depression, stress, and anxiety in the general population may have increased since the pandemic.^{7,8,9} There is some evidence that psychiatric symptoms increased in the general population but then returned to baseline levels by June.^{26,30}
 - 53.0 percent of the 26,174 state, tribal, local, and territorial public health employees questioned said they had experienced symptoms of at least one mental health problem in the previous two weeks. Those who were unable to take time off or who worked more than 41 hours a week had more symptoms.⁴⁵
 - Parents, unpaid caregivers of adults, and parents-caregivers (people in both roles) had significantly worse mental health than adults not in these roles, with five times the odds of any adverse mental health symptoms among 10,444 U.S. adults surveyed between December 6–27, 2020, and February 16–March 8, 2021. (Parents-caregivers). People who had someone to lean on for support were less likely to suffer from negative mental health symptoms.⁴¹
 - ED visits for suspected suicide attempts among teenagers aged 12–17 years, particularly girls, began to rise in May 2020, during the COVID-19 epidemic. Suspected suicide attempt ED visits increased 50.6 percent among females aged 12–17 years between February 21 and March 20, 2021, compared to the same period in 2019. Suspected suicide attempt ED visits increased 3.7 percent among boys aged 12–17 years.⁴²
 - Healthcare workers are especially at risk.^{7,8,9,10} Home Health Care workers reported feeling vulnerable but invisible.¹¹
 - In a Canadian cross-sectional study of mothers of kids aged 0-8, the levels of clinically significant depression and anxiety both were dramatically increased compared to pre-COVID levels.¹²
 - A study of LGBTQ+ individuals found higher levels of stress and depression compared to pre-COVID studies, especially among young, transgender, gender diverse, and non-heterosexual individuals who did not identify as gay or lesbian.¹³
 - A UK study of families with children who have special education needs or disabilities found that many families reported increased anxiety and fear.¹⁴
 - The CDC reported that 40% of adults have been struggling with mental health or substance use, and that young adults, essential workers, unpaid caregivers of adults, and racial/ethnic minorities are experiencing these symptoms at higher rates.¹⁰
 - One study found the largest mediator of the initial increase in distress to be changes in perceived health risks.³⁰

- A cross-sectional survey of pregnant and postpartum women from 64 countries found high prevalence of clinically significant post-traumatic stress, anxiety/depression, and loneliness between May and June (43%, 31%, and 53% respectively). Excessive information seeking and worries related to children and medical care were associated with higher prevalence of clinically significant symptoms.²⁹
- An observational study in outpatient clinics showed that immigrant patients experienced worsening anxiety and depressive symptoms during the pandemic. 48.57% and 45.71% of participants reported worsened anxiety and depression levels due to the pandemic, respectively. The study found that PHQ-2 and GAD-2 scores significantly increased by 0.81 and 0.63 points, respectively, suggesting that COVID-19 has had a negative impact on the mental health of this population. Factors that were found to influence results of K10+ screening include pre-existing depressive disorder, food insecurity, and comfort during telepsychiatry visits. Telephone based psychiatry was shown to help patients manage their mental health during the pandemic.³³
- Since 57% of children who receive mental health services receive it from school, there is reduced access to mental health care for children and adolescents whose schools are closed.¹⁵

Substance Use Disorders

- A cross-sectional study of people with alcohol use disorders in the UK found that lockdown was a risk factor for increased alcohol consumption, including harmful levels. However, some participants decreased their alcohol consumption.¹⁶
- A retrospective study of EMS activations found that while the number of overdose EMS activations remained relatively stable before and after the pandemic, the number of activations for overdose-related cardiac arrests increased during the pandemic to 48.5% above 2019 levels, with a peak in May 2020.²⁸
 - The increased case-fatality rate may be due to increased substance use while alone or decreased access to care.²⁸
- The CDC reported that, in a year long period after June 2019, synthetic opioid usage overdose deaths increased by 38%. Prior to the COVID-19 pandemic, opioid use related deaths were concentrated in areas east of the Mississippi River. From June 2019 to May 2020, fentanyl-related deaths increased by 98% in western states.⁴⁰

Domestic Violence and Gender Equality

- There may be increased risk of domestic violence compared to pre-COVID levels due to increased stress and financial insecurity as well as decreased social support.¹⁷
 - Child abuse reporting in several states have decreased by up to 70% percent compared to pre-COVID-19 levels.¹⁸ In the United States, 67% of substantiated reports come from victim-serving professionals like educators, so reduced reporting likely indicates that child abuse and neglect are continuing unreported due to school closures.^{17,18}
 - Child abuse/neglect related ED visits decreased beginning the week of March 15, reaching a nadir the week of March 29th. However, the number of child abuse/neglect ED visits requiring hospitalization did not change significantly.³²

- One study of ED admissions at Ottawa Hospital showed that ED admissions for sexual assault and domestic violence decreased by 32.9% even though rates of psychological abuse and outdoor assaults increased.³⁸
- Domestic violence reports have increased dramatically around the world, by as much as three-fold during lockdown in China. Some reports also include the use of COVID-19 as a weapon for emotional abuse.¹⁷
- One survey found that most participants reported intimate partner violence victimization remained the same during the pandemic, but that sexual and physical violence was exacerbated.¹⁹
- In Chicago, child abuse was reported less often in 2019 than 2020 and one study found that cases with arrests were 20% less likely to have occurred while cases at residential locations were 22% more likely to have occurred. During the shelter-in-place period, cases were 64% more likely to have occurred in residential locations.³⁴
- A study of working parents found that 36% of surveyed dual-earner couples adopted a strategy for childcare in which the wife worked and did all or most of the childcare, and that this group had the lowest measures of well-being and job performance.²⁷

Childhood Immunizations

- Routine childhood immunization orders have decreased significantly since COVID-19 was declared a national emergency. This may reflect parental concern of exposing children to the disease.²⁰
 - Analysis of immunization information systems data from 10 U.S. jurisdictions indicated a substantial decrease in administered vaccine doses during March–May 2020 compared with the same period during 2018 and 2019. Although administered doses increased during June–September 2020, this increase was not sufficient to achieve catch-up coverage.⁴³
 - A Colorado study found that childhood vaccine administration had decreased by 78% for children 3-9, and 82% for ages 10-18 between January and May.³¹
- A World Health Organization poll found that in 85% of 61 countries that responded, childhood immunization rates had decreased since January.²¹
 - Reasons cited for decreased immunization included limited available PPE, limited health care workers, and travel restrictions.²¹
 - National responders from 73% of countries said that there was decreased demand for vaccinations, due to fears of exposure and limited public transport.²¹

Stigma & Racism

- Healthcare workers may be facing increased stigma due to the pandemic, which is consistent with previous data from outbreaks.²²
 - According to a survey assessing stigmatization of healthcare workers, more than a quarter of respondents felt that healthcare workers should have restrictions placed on their freedoms to avoid infecting people with COVID-19.²²
 - More than a third of survey respondents said they would avoid healthcare workers for fear of contracting COVID-19.²²
- Among a survey of 543 Chinese American parents and 230 of their children, nearly half of parents and youth reported being directly targeted by COVID-19 racial discrimination online.²³

- About one-fourth of the survey respondents experienced witnessing vicarious racial discrimination almost every day.²³
- Higher levels of parental and youth perceived racism and racial discrimination were associated with poorer mental health in parents and youth.²³
- A survey of undergraduate pharmacy students in New Zealand (50% Asian) found that 13% of students experienced direct racism, 35% reported indirect racism, and 37% reported that racism associated with COVID-19 impacted their well-being. Social media, verbal abuse, and physical contact or gestures were reported as sources for racism and occurred at grocery stores, on the street, or in other public establishments.³⁵
- Analysis of county-level resident segregation, racial disparities in socioeconomic outcomes, and incarceration rates were used by researchers to evaluate the effects of structural racism on county-level COVID-19 outcomes. Researchers found that structural racism is an empiric driver of health disparities reinforcing existing calls to address the impact that this has on health outcomes.³⁷
- Black and Asian adults are more likely than White or Hispanic individuals to report that they have been the victim of racial slurs or jokes and Asians are more likely to respond that this has increased since the beginning of the pandemic.³⁹

Recommendations:

- Where possible, patients with known chronic diseases should be made aware of telemedicine options to ensure appropriate management. Public health messages should encourage chronic disease management.
- Practitioners should counsel parents on healthy practices to avoid unhealthy weight gain and obesity. As food insecurity also leads to unhealthy weight gain, clinicians should screen for food insecurity and connect patients with appropriate resources.
- As clinicians are some of the few remaining reporters, they should screen for signs of domestic violence, child abuse or neglect regardless of trends in cases reported in the community.
- Practitioners should screen for psychiatric symptoms and connect patients with mental health resources, including affordable and telemedicine options where possible. In addition, for perinatal patients, providers should reinforce healthy information seeking and address worries about access to medical care and the well-being of their children. Public health efforts should include efforts to prevent psychiatric symptoms, like financial support and promoting social connectedness.
- Clinicians should be sensitive to the unique challenges Asian American families may face due to racism during the COVID-19 pandemic and connect patients with appropriate mental health resources.
- Clinicians should screen for increased substance use and connect patients at risk of harmful substance use with liaison services. Public health efforts should include substance use harm reduction strategies.
- Clinicians should alert patients to the risks of synthetic opioids and prescribe naloxone for individuals who have a history of substance use disorder and/or a history of a previous overdose. Clinicians should also instruct patients in the proper use of naloxone.
- Clinicians should strengthen outreach efforts for bringing children up to date with routine vaccinations, including educating parents on the importance of vaccines even during the

pandemic. Making vaccine administration available with limited contact (for example, via a drive-thru vaccine clinic) could also ease parental concerns.

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