Scientists are slowly unraveling the full impact of COVID-19 on physical health. However, the impact of the pandemic on mental health is only now coming into focus. A recent study assesses the incidence of a health condition that doctors relate to mental stress.

Stress cardiomyopathy, which is also called Takotsubo cardiomyopathy and broken heart syndrome, occurs in response to physical or emotional stress.

The author of an earlier study describes it as “a condition caused by intense emotional or physical stress leading to rapid and severe reversible cardiac dysfunction.”

Individuals who experience stress cardiomyopathy display similar symptoms to a heart attack, including chest pain and shortness of breath. Unlike a heart attack, however, there is nothing blocking the coronary arteries.

Although scientists do not know the exact mechanisms that drive stress cardiomyopathy, some believe that stress hormones might interfere with the heart’s ability to pump blood sufficiently.

A new study, which appears in *JAMA Network Open*, asks whether the psychological, social, and economic stress of the pandemic has an association with an increased incidence of stress cardiomyopathy.
Stress, anxiety, and COVID-19

As the authors explain in their paper, “The effect of COVID-19 has extended beyond healthcare, having significant social, economic, and cultural ramifications. The global effects of the virus have been linked with increasing stress and anxiety worldwide.”

Study lead Dr. Ankur Kalra explains how these stresses “can have physical effects on our bodies and our hearts, as evidenced by the increasing diagnoses of stress cardiomyopathy we are experiencing.”

The authors of the current study set out to quantify the increase in incidence.

They also wanted to investigate whether psychological, social, and economic stress could explain the increase, or whether SARS-CoV-2 — the virus that causes COVID-19 — might prompt a condition that resembles stress cardiomyopathy.

To investigate, the researchers delved into retrospective medical records. They identified individuals who arrived at the hospital with symptoms of acute coronary syndrome (ACS).

ACS is an umbrella term for situations where the heart muscle receives a reduced blood supply from the coronary arteries. ACS includes heart attack and unstable angina.

They took patient data from March–April, 2018, January–February 2019, March–April 2019, and January–February 2020, which was a control group. They compared this with data from March–April 2020. All patients received treatment in two hospitals in Ohio, in the United States.

In total, the hospitals treated 1,914 individuals who presented with ACS symptoms. Of these, 1,656 cases occurred before the pandemic, and 258 during the pandemic. Importantly, all individuals with ACS who were in the hospital during the pandemic tested negative for SARS-CoV-2.

Increase in ‘broken heart syndrome’

During their analysis, the authors found “a significant increase in the incidence of stress cardiomyopathy in patients presenting with ACS during the COVID-19 period.”

In the pre-COVID samples, stress cardiomyopathy accounted for 1.5%-1.8% of patients, but in the March-April 2020 group, doctors registered stress cardiomyopathy in 7.8% of patients.

Although there were no differences between mortality rates, the researchers noted that individuals with stress cardiomyopathy during the pandemic had significantly longer hospital stays than those before the pandemic.

Because none of the individuals in the study group had COVID-19, the authors believe this supports the theory that the psychological stress of living through a pandemic increases the risk of stress cardiomyopathy.
The authors outline certain limitations with their study. Firstly, the study only included individuals from Northeast Ohio, and therefore, might not represent other regions or countries. Secondly, it is possible that some patients avoided visiting the hospital during a pandemic, for instance, those with less severe symptoms.

Thirdly, the authors explain that the COVID-19 tests the study used had a sensitivity rate of 79%. This means that some of the participants might have had COVID-19.

However, the authors explain that “none of the patients diagnosed with stress cardiomyopathy in the study group reported any symptoms suggestive of COVID-19-related illness.”

**Mental health and stress cardiomyopathy**

An earlier study found that, compared with people with ACS, individuals with stress cardiomyopathy were twice as likely to have neurologic or psychiatric disorders.

Of the 1,750 people the study enrolled, 42.3% had a diagnosed psychiatric illness, and of those, half were affective disorders, such as depression and bipolar disorder.

Although the connection between psychiatric conditions and stress cardiomyopathy is fairly well established, until scientists carry out more studies, the exact nature of the relationship is unclear.

As societies battle a pandemic, global mental health is facing significant challenges. Senior author Grant Reed explains:

“**While the pandemic continues to evolve, self-care during this difficult time is critical to our heart health, and our overall health. For those who feel overwhelmed by stress, it’s important to reach out to your healthcare provider. Exercise, meditation, and connecting with family and friends, while maintaining physical distance and safety measures, can also help relieve anxiety.**”