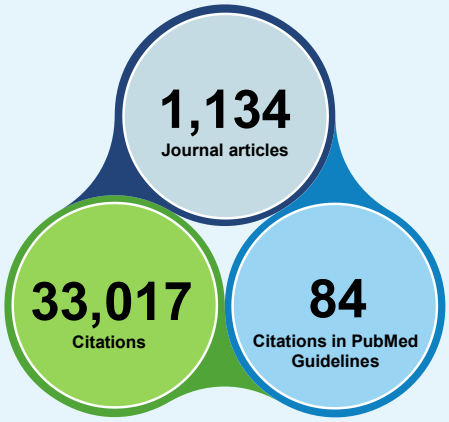
Kaiser Permanente Research Brief

Mental health

This brief summarizes the contributions of Kaiser Permanente Research since 2012 on the topic of mental health, including depression, anxiety, and other affective and stress disorders.

The Centers for Disease Control and Prevention defines mental health conditions as those characterized by alterations in thinking, feeling, mood, or behavior associated with distress or impaired functioning.[1] Anxiety disorders and depressive disorders are the first and second most common mental health conditions in the United States.[2] Approximately 50% of people in the United States will have a mental health condition at some point in their lifetime,[3] and 4% of Americans live with a serious mental illness such as schizophrenia, bipolar disorder, or major depression.[1] Suicide was the 12th leading cause of death in 2021, accounting for more than 48,000 deaths in the United States.[1; 4]

Kaiser Permanente publications related to mental health since 2012



Source: Kaiser Permanente Publications Library and Scite metrics, as of February 29, 2024.

Mental health is an important area of study for Kaiser Permanente Research. Scientists across the organization have used our rich and comprehensive data to advance knowledge in the areas of understanding risk, improving patient outcomes, and translating research findings into policy and practice. We have published more than 1,100 articles related to mental health conditions since 2012; together, these articles have been cited more than 33,000 times.[5] These articles are the product of observational studies, randomized controlled trials, meta-analyses, and other studies led by Kaiser Permanente scientists. Our unique environment — a fully integrated care and coverage model in which our research scientists, clinicians, medical groups, and health plan leaders collaborate — lets us contribute generalizable knowledge about mental health, and many other research topics.

Understanding risk

Who is at risk for developing mental health conditions?

Kaiser Permanente researchers have contributed to understanding risk factors for developing mental health conditions, including family history,[6-9] genetic factors,[10] adverse life experiences (such as abuse, neglect, or intimate partner violence),[11-17] and life course events (for example, childbirth).[18-21] For youth, depression risk has also been linked to parental depression.[22; 23] Some severe medical conditions have also been linked to depression and suicidality (suicidal ideation, suicide plans, and suicide risk), such as eating disorders,[24] autism spectrum disorder,[25] psoriasis,[26-30] active dialysis,[31] chronic obstructive pulmonary disease (COPD),[32]

This brief summarizes a selection of the publications contained within the Kaiser Permanente Publications Library, which indexes journal articles and other publications authored by individuals affiliated with Kaiser Permanente. The work described in this brief originated from across Kaiser Permanente's 8 regions and was supported by a wide range of funding sources including internal research support as well as both governmental and nongovernmental extramural funding.

and acute coronary syndrome events.[33] Recent analyses from the Mental Health Research Network also found that sleep disorders, HIV and AIDS, traumatic brain injuries, and multiple physical health problems increased the risk of suicide.[34; 35] Kaiser Permanente scientists have also found higher levels of anxiety in children, greater depression and anxiety among adults, and increased use of mental health services during the COVID-19 pandemic,[36-40] though the implications of these mental health symptoms are unclear.[41] Other recent research has linked social determinants of health, including adverse neighborhood characteristics, low socioeconomic status, and economic recession, with increases in depression symptoms and suicide risk.[42-46] Our scientists have also found evidence of significant racial and ethnic disparities in mental health conditions, which are diagnosed more frequently in White and Native American patients.[47] An analysis of Kaiser Permanente members in northern California found that perinatal and postnatal depression are more common in Black women, relative to White women.[48]

There is emerging evidence that some prenatal exposures may contribute to the risk of mental health conditions for children. Our research has tentatively linked both maternal tobacco use during pregnancy[49] and maternal influenza[50] to bipolar disorder. Another study conducted by Kaiser Permanente scientists found an association between schizophrenia spectrum disorders in male offspring and perinatal exposure to maternal stress.[51]

What other health risks do people with mental health conditions face?

People with mental health conditions experience a range of health risks, including medication-related risks. Our research has demonstrated that people with bipolar disorders or schizophrenia have greater odds of having medical comorbidities (2 or more co-occurring chronic conditions) and higher rates of cardiovascular mortality than people without these serious mental illnesses.[52; 53] People with serious mental illness also experience greater risk of obesity and diabetes, both independently and because of the side effects of medications.[54] Recent Kaiser Permanente research has also found that patients with depression and unmet needs for mental health care use psychoactive medications, including opioids, more heavily than patients without mental health symptoms.[55-57] Other work has found that patients with major depression or bipolar disorder (though not patients diagnosed with schizophrenia) are more likely to be diagnosed with chronic non-cancer pain and to be prescribed opioid medications.[58] There is also some evidence of a link between depression or anxiety and worse outcomes for some chronic conditions,[59] including diabetes[60-62] and COPD.[63] These associations may reflect the impact of these mental health conditions on patients' abilities to complete self-management activities, such as taking medications as prescribed.[64-66]

Kaiser Permanente researchers have documented risks for fetuses exposed to some mental health medications in utero,[67] and have explored associations between use of these medications during pregnancy and conditions such as preeclampsia or gestational diabetes.[68; 69] Understanding the risks of medication use during pregnancy has become

Information for families can help with healthy development

Kaiser Permanente researchers in Northern California and Colorado are participating in a trial of Guiding Good Choices, a 5-session parent-focused program for preventing mental health problems in teens and preteens.[95]

1. How to promote health and well-being during the teen years
2. How to develop healthy beliefs and clear standards
3. How to deal with anger in a positive way
4. How to say no, keep your friends, and still have fun
5. How to strengthen family bonds

increasingly important because the number of prenatal exposures to some classes of mental health medications has been growing over time.[70]

There has been substantial controversy about the appropriateness and safety of some mental health medications, particularly for younger patients.[71] There is evidence of a small increase in suicidality risk associated with certain medications, although large studies involving Kaiser Permanente scientists found that reduced prescribing of antidepressants was associated with increased suicidal behavior among adolescents and young adults.[71; 72] These findings have led to changes in the prescribing of these drugs to youth,[73] and have also prompted studies comparing effectiveness of different treatment pathways for youth who are not responsive to their initial prescribed treatment.[74]

Kaiser Permanente research scientists have authored studies evaluating the risks of suicide and non-suicidal self-injury[75-78] and assessing screening methods for suicidality.[79; 80] There is evidence of elevated suicide risk for adolescents following their initial diagnosis with a psychotic disorder,[81-83] as well as for adults with psychotic disorders and histories of suicidal ideation.[84] Our researchers have also demonstrated that patients with adverse socioeconomic circumstances,[46] patients with prior suicide attempts,[85] patients with chronic pain,[86] patients with substance use disorders[87; 88] or heavy alcohol use,[89] and elderly people experiencing depression[90] — among others — are at high risk for self-injury. Recent research has employed artificial intelligence methods to develop more accurate tools for monitoring depression treatment,[91; 92] and to identify people at high risk for suicide attempts or death by suicide.[88; 93-98] Our scientists have also explored genetic factors associated with risk for suicidal behavior.[99]

Improving Patient Outcomes

What strategies are effective in preventing mental health conditions?

Although opportunities for primary prevention of mental health conditions are limited, Kaiser Permanente researchers have assessed some prevention strategies for high-risk populations. For example, recent studies have demonstrated a decrease in newly-occurring depression among at-risk adolescents who participated in group cognitive behavioral therapy.[23; 100; 101] The link between environmental exposures (such as adverse childhood experiences or perinatal exposures) and mental health outcomes may offer an opportunity to prevent mental health conditions.[102] An ongoing randomized trial will evaluate Guiding Good Choices, a parenting program aimed at preventing depression and misuse of drugs and alcohol in adolescents.[103]

Only 36% of patients newly diagnosed with depression initiated treatment within 90 days.

47% of patients with depression receiving treatment in primary care experienced improvement in their depression symptoms after 6 months.

Standard telephone, video conferencing, and web-based **interventions are effective** for treating a range of mental health conditions.

How does early identification of mental health conditions affect outcomes?

Screening for mental health conditions is essential to timely diagnosis. Our researchers have evaluated screening in studies focused on specific populations and conditions, including child and adolescent depression,[104; 105] adult depression,[106] perinatal and postpartum depression,[18; 107; 108] and suicidality.[79]

A Kaiser Permanente clinical trial compared the effectiveness of 3 early intervention staffing models for adolescents reporting substance use and depression symptoms, and found that offering a behavioral clinician within primary care settings was the most effective model for controlling the progression of depression symptoms.[109] Early recognition of mental health conditions is also important because of the risk of self-harm for patients with mood disorders.

Past research has demonstrated that most patients in the year before suicide were seen in at least one health care setting, but many do not receive a mental health diagnosis.[110] Simple questionnaires may identify people at high risk for suicide.[111-113] Kaiser Permanente researchers have collaborated with clinical leaders to implement systematic screening for suicide risk,[114] and have undertaken new efforts to explore and improve members' experience of screening.[115-117]

Our scientists are national leaders in research identifying firearm safety as a component of suicide and self-harm prevention. This research has underscored the difficulty of predicting suicide risk based on patient characteristics,[112; 118; 119] though one study identified medical diagnoses associated with increased risk of firearm suicide.[35] Another study demonstrated that performing an assessment of means for committing suicide may reduce the risk of suicide attempts or death for patients who disclose suicidal thoughts on a screening questionnaire,[120] though lethal means assessment is often not performed with these patients.[112; 118; 119; 121] Finally, Kaiser Permanente scientists are conducting ongoing evaluations of firearm safety programs delivered online and in pediatric primary care settings.[122-124]

What are the key factors in effective treatment of people with mental health conditions?

Access to and engagement in treatment: An essential factor in treating mental health conditions is to engage individuals in treatment.[125] Many patients who might benefit from treatment do not receive it. A recent Kaiser Permanente study assessed treatment initiation patterns for adults with depression. Researchers found low rates of treatment entry among patients for whom it was recommended (35.7% of newly diagnosed patients overall), with disparities among racial and ethnic groups.[126] Some of those disparities may reflect patients' treatment preferences, but some may reflect differing treatments provided by clinicians.[127] One study conducted by Kaiser Permanente scientists found that costs were a common barrier to use of mental health medications, while physician recommendations were helpful for increasing medication adherence.[128] Other work conducted by our scientists has suggested that use of marijuana may negatively impact engagement with psychiatric care in patients with depression,[129; 130] and that patients living in rural areas experience greater challenges in access to mental health services.[131]

System-level barriers to accessing care have been described by our researchers, and include provider payment models, clinical linkages across disciplines, and confidentiality policies limiting information-sharing between disciplines.[132-134] Even among patients who seek treatment, outcomes are not consistent. For example, in one study of response to depression treatment in primary care, only 47% of patients experienced a large improvement in their symptoms after 6 months.[135] Although decreases in in-person mental health visits were offset by virtual visits during the COVID-19 pandemic, recent data suggest that prescribing of psychotherapeutic medication also declined during this period.[136; 137]

Stigma associated with mental health treatment can be a barrier to entry for some populations.[138-140] Recent research suggests that health information technologies may extend access to mental health care in many ways, including by offering treatment methods that patients may find more acceptable.[141; 142] A qualitative study focused on youth with schizophrenia, schizoaffective disorder, bipolar disorder, or affective psychosis suggested several recommended themes for better engaging patients in treatment.[143]

Kaiser Permanente researchers have identified racial and ethnic disparities in mental health treatment, including differences in utilization of antidepressant medication[47; 135] and psychotherapy,[47; 126; 144; 145] as well as disparities in contact with the health care system shortly before a suicide attempt.[146] This work has suggested strategies for improving care to disadvantaged patients, including improving cultural knowledge and competency, addressing language barriers, improving the convenience of treatment, and generally improving the clinical skills of providers who treat diverse patient populations.[127; 147]

Person-centered treatment with psychotherapy and medications: Many psychotherapeutic approaches are widely proven to be valuable — either alone or in combination with medications — for treating an array of specific populations and conditions.[148-154] In recent years, this has included web- and smartphone-based programs that show great promise.[141; 155-164] Kaiser Permanente studies have also contributed to our understanding of the many complexities of medication treatment including combining medications, switching medications, and adjusting dosages.[165-167]

Ensuring that treatment is person-centered is an important issue for mental health care. Disparities in mental health treatment have been documented by our researchers.[47; 126; 145] However, it is not always clear whether these differences reflect variation in patient preferences for treatment; more research is needed in this area.

A recent Kaiser Permanente study that sought to better characterize patients' recovery objectives concluded that patients' goals are varied and change over time, and that services must be flexible to accommodate each patient's current priorities.[168] Recognizing progress in treatment through feedback-informed care — in which patient-reported symptoms are tracked over time and used to inform treatment decisions — is an example of partnering with patients to make shared decisions.

Overall health and wellness: The management of co-occurring health conditions and maintenance of general wellness is also essential to the care of people with mental health conditions. This includes addressing harmful health behaviors, such as smoking or problematic alcohol use, through screening and intervention programs.[169-173]

Our researchers have found some evidence of more complete use of recommended preventive services and better cardiometabolic risk-factor control among individuals with serious mental illnesses than in the general population,[174; 175] possibly reflecting strong connectivity to care, and we have conducted studies of care delivery system factors that can increase preventive care engagement among these patients.[176; 177] Other work has offered encouraging results about the feasibility of engaging people with serious mental illnesses in self-management programs. Several Kaiser Permanente studies have described the development and testing of health promotion programs adapted specifically for people with serious mental illnesses and found that the programs can successfully lead to weight loss and decreased cardiovascular risk.[178; 179]

Translating Research Findings Into Policy and Practice

Kaiser Permanente is a learning health care organization that works to systematically use research to inform and improve practice both within Kaiser Permanente and beyond. Kaiser Permanente researchers help lead the Mental Health Research Network, which is funded by the National Institute of Mental Health to improve mental health care by connecting research, practice, and policy.[180-182] The MHRN includes participating research centers from 14 health care organizations, including 7 of Kaiser Permanente's regional entities.

MHRN has collaborated with health care organizations to understand the relationship between suicidal ideation, depression, and subsequent suicide attempts.[75; 111; 182] Its collaborative response to evidence of

persistent suicide risk for patients reporting thoughts of suicide on the standard screening tool, known as the PHQ-9, is an example of the impact possible from partnerships between researchers and health care organizations.[75; 84; 114] MHRN members have put in place both practice changes and complementary research plans to address the previously unrecognized sustained suicide risk in this population.[114] The Joint Commission issued a recommendation that all patients be screened for suicidal ideation, based in part on the MHRN findings.[183]

Feedback informed care
Patients and therapists use patient-reported symptom information to track progress and improve outcomes.

Patients **complete a questionnaire** about their feelings after each visit.

Questionnaire results are tallied into a **Global Distress Score**.

Scores are **tracked over time** by patients and their clinicians.

Patterns over time are used to **guide treatment** decisions.

Research, clinical, and operational partners within Kaiser Permanente have tested a range of interventions to identify and treat mental health conditions or improve outcomes for people with mental health conditions. These have included guideline-concordant cognitive behavioral therapy,[184] web- and smartphone-based psychotherapy methods,[156; 158; 159] telemonitoring of depression,[185; 186] use of electronic medical records to monitor depression treatment outcomes,[187] universal perinatal depression screening,[107] screening for depression among patients with cancer,[188] brief behavioral therapy,[189-191] reducing high-risk medication regimens,[73; 192; 193] web-based resources for suicide prevention,[194] use of telehealth technologies to enhance pediatric mental health referrals,[195] and using models of integrated care and collaborative care.[196-199] Work related to the launch, spread, and scale of the collaborative care model exemplifies Kaiser Permanente's ability to link research and clinical operations.[197; 199-206] Implementation and evaluation of suicide screening and prevention programs is an ongoing focus in our organization.[112; 122; 207; 208] Research conducted by our scientists has identified racial disparities in the accuracy of suicide-risk prediction models, suggesting a need to improve screening practices in underrepresented patient populations.[209] During the early stages of the COVID-19 pandemic, the rapid shift to virtual care delivery allowed Kaiser Permanente to expand screening and detection of suicidal ideation.[210] Our researchers are also leaders in the development of prediction models that leverage artificial intelligence methods and our electronic health record system to improve suicide prevention and treatment monitoring in patients with depression.[91-93; 95; 211; 212]

Our research not only contributes to changes in policy and practice within Kaiser Permanente but has also advanced national understanding of mental health and wellness. Since 2012, Kaiser Permanente's research articles on mental health have been cited 84 times within recent statements and clinical practice guidelines. Our scientists also participated in a recent Banbury Forum on digital mental health treatment.[213] In addition, our scientists have directly authored practice guidelines and systematic reviews on a variety of mental health care topics, including screening for and treatment of depression during pregnancy and the postnatal period,[18; 20; 21] deprescribing of antidepressant medications in older patients,[214] screening for anxiety,[215] screening for suicidality in primary care,[79] and screening after acute coronary syndrome events.[216] We have also contributed to a recent statement on ketamine pharmacotherapy from the American Psychiatric Association.[217]

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