

Groundbreaking research reveals combining data supercharges mental health crisis prediction

BARCELONA, SPAIN, November 2, 2023 /EINPresswire.com/ -- • Long-term data facilitates analysis: Researchers tracked 59,750 de-identified patient records over eight years, with a specific focus on predicting mental health crises within a 28-day timeframe.

- Combined data boosts predictions: Findings demonstrate that a machine learning model that combines structured electronic health records (EHR) with clinical notes achieves significantly better predictive performance compared to models using only one data source.
- Context improves predictive accuracy: These results emphasize that the combination of structured data (like demographics and diagnosis) with clinical notes, which provide subjective insights into the patient's mental health status, substantially enhances accuracy when forecasting mental health crisis relapse.

In an extensive 8-year study published in [Cell Reports Medicine](#) conducted by Koa Health, researchers closely monitored 59,750 de-identified patient records, with a primary goal of predicting mental health crises occurring within a 28-day window. A mental health crisis is defined as situations in which patients are unable to function effectively in the community or when there is a risk of hurting themselves or others.

The results of this study provide critical insights into the power of combining different types of data for predictive analytics in mental healthcare. Findings reveal that utilizing both structured electronic health records (EHR) and narrative clinical notes significantly improves the accuracy of mental health crisis relapse prediction.

Mental health crises continue to present [a significant challenge](#) to healthcare systems worldwide. With a consistent rise in demand for mental health services and increasingly limited resources, it's essential to find and leverage effective predictive methods. This research, conducted over a substantial timeframe, highlights the importance of incorporating diverse types of data to enhance predictions. The combination of structured and quantitative data, such as demographics and diagnosis, with qualitative data from clinical notes that provide the subjective context of a patient's mental health status, significantly strengthens the accuracy of predicting mental health crisis relapses.

More accurate crisis prediction enables providers and healthcare systems to drive positive outcomes, optimize resource allocation, and facilitate timely interventions, saving lives by helping ensure people struggling don't slip through the cracks.

Dr. Oliver Harrison, CEO of Koa Health, said, "Access to mental health care remains a huge challenge worldwide. Too often, mental health services are reactive—managing crisis events in the Emergency Room, rather than proactive—detecting problems early and avoiding crises. Building on our paper in [Nature Medicine](#) last year, this research shows that analyzing a combination of clinical notes and structured health records can create robust predictions, offering the hope of preventing these crises and avoiding human suffering and very high cost."

Dr. João Guerreiro, Senior Applied Scientist at Koa Health, said, "There is a clear lack of standardization in clinical note-taking. In order to address it, our study introduces methods that tackle the challenges presented by the diversity of doctors' personal note-taking styles and the varying amounts of clinical notes per patient. Our research highlights the importance of choosing an appropriate machine learning method to account for the biases that arise due to patients with more severe crises having a greater volume of notes, as well as the challenge of combining structured and unstructured data sources."

Roger Garriga, Lead Data Scientist at Koa Health, said, "Mental health crises can profoundly impact the mental and social wellbeing of individuals who experience them. Predictive models offer the opportunity to enhance clinical decision-making and enable timely interventions geared toward prevention, thereby transitioning from the current reactive care paradigm to a proactive approach. Our study demonstrates the effectiveness of clinical notes in predicting mental health crises and underscores the benefits of effectively combining these notes with structured electronic health records, leading to improved outcomes."

Dr. Aleksandar Matic, Research and Development Director at Koa Health, said, "Although structured EHRs (electronic health records) are becoming a standard, clinical notes remain a dominant data source in most healthcare systems. Our study marks a crucial milestone, urging the integration of both data types for preventative interventions. By blending these models, we unlock the potential to revolutionize clinical decision-making and improve health outcomes in mental health crises."

About Koa Health:

Designed to help your employees find the right mental healthcare at the right time, Koa Health's comprehensive care model, Koa Care 360 offers employees simple navigation, and personalized, evidence-based care built with the world's leading clinician-academics.

Koa Health provides an integrated approach to care that delivers mental health for everyone, whether they prefer digital-first care or would benefit from clinical services delivered by a human. Available to more than 3 million users worldwide, Koa Health addresses the full

continuum of mental health needs – from prevention to treatment.

Backed by leading investors such as Morningside, Ancora Finance Group, Wellington Partners Life Sciences, and MTIP, Koa Health leverages deep clinical expertise, research, and technology to deliver effective and accessible care that adapts to users' unique circumstances, leading to lasting behavior change and positive health outcomes across the full continuum of mental health.

With operations in Barcelona, the US and the UK. Koa Health partners with leading clinicians and academics, including Massachusetts General Hospital, University College of London, the London School of Economics, and Birmingham and Solihull Mental Health NHS Foundation Trust. For more information, please contact us at info@koahealth.com

A final note on data ethics and privacy:

The data and clinical notes used in this study were anonymized by the NHS (National Health Service) to ensure that individual identities were protected. To bolster privacy and data security, several measures were put in place, including the segregation of internal teams with varying levels of data access. These measures were designed to minimize the chances of identification and protect the confidentiality of patient information.

Koa Health recognizes the significance of safeguarding patient privacy and our study team has taken comprehensive steps to ensure the responsible and ethical handling of data throughout the research process.

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