New research provides hope for Parkinson's disease symptom control

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Finding the right medication regimen to treat Parkinson's disease (PD) is a complex health care challenge. Wearable health trackers provide physicians with a detailed window into patients' symptoms, but

translating this complex data into useful treatment insights can be difficult.

New research in the journal *Management Science* accomplishes just that. Researchers have found that combining wearable health tracker data with state-of-the-art algorithms results in promising treatment strategies that could improve PD patients' outcomes.

"Our model identified a Parkinson's disease medication strategy: Frequent dosing of a slow-release medication formulation that would benefit almost all patients," says Matt Baucum of Florida State University, one of the study authors.

"In fact, our model uses wearable sensors to predict that patients would spend almost twice as long each day (82% longer) with well-managed symptoms under our recommended medication strategy, compared with their existing medication regimens."

The paper, "Optimizing Patient-Specific Medication Regimen Policies Using Wearable Sensors in Parkinson's Disease," suggests the resulting models can offer novel clinical insights and medication strategies that can potentially democratize access to improved care.

"Our research suggests that combining rich data from wearable health trackers with the pattern-discovery capabilities of machine learning can uncover treatment strategies that otherwise might have gone underutilized," says Anahita Khojandi, study co-author from the University of Tennessee, Knoxville.

"The algorithms we developed can even be used to predict patients who might benefit from more advanced PD therapies, which really highlights their ability to extract the maximum value from wearable data."

Baucum and Khojandi, alongside fellow authors Dr. Rama Vasudevan of Oak Ridge National Laboratory and Dr. Ritesh Ramdhani a neurologist at Hofstra/ Northwell, emphasize that this work is groundbreaking for PD patients who may experience improved symptom control through continuous sensor monitoring and a novel AI approach.

"The results of this research offer the potential to revolutionize the care of PD patients by harnessing the power of AI to inform and enhance treatment decisions for a disease whose symptoms are frequently changing," says Ritesh Ramdhani.

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