

Discovering the causal structure of the Hamilton Rating Scale for depression using causal discovery

Lu Wang, Mark Chignell, Haoyan Jiang,
Schinthya Lokuge, Geneva Mason, Kathryn Fotinos, Martin Katzman



UNIVERSITY OF
TORONTO

Engineering



UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING
Centre for Healthcare Engineering

Background

Major Depressive Disorder (MDD) causes many negative consequences including suicide and disability and is one of the leading preventable causes of death in many countries.

The Hamilton Rating Scale for Depression is used to assess depressive symptom severity. It is,

- validated psychometrically,
- administered clinically,
- consists of 17 categories of symptoms.

Identifying the causal relationships between these 17 categories:

- Provides insights into depressive symptoms,
- leads to new treatments for patient sub-populations.

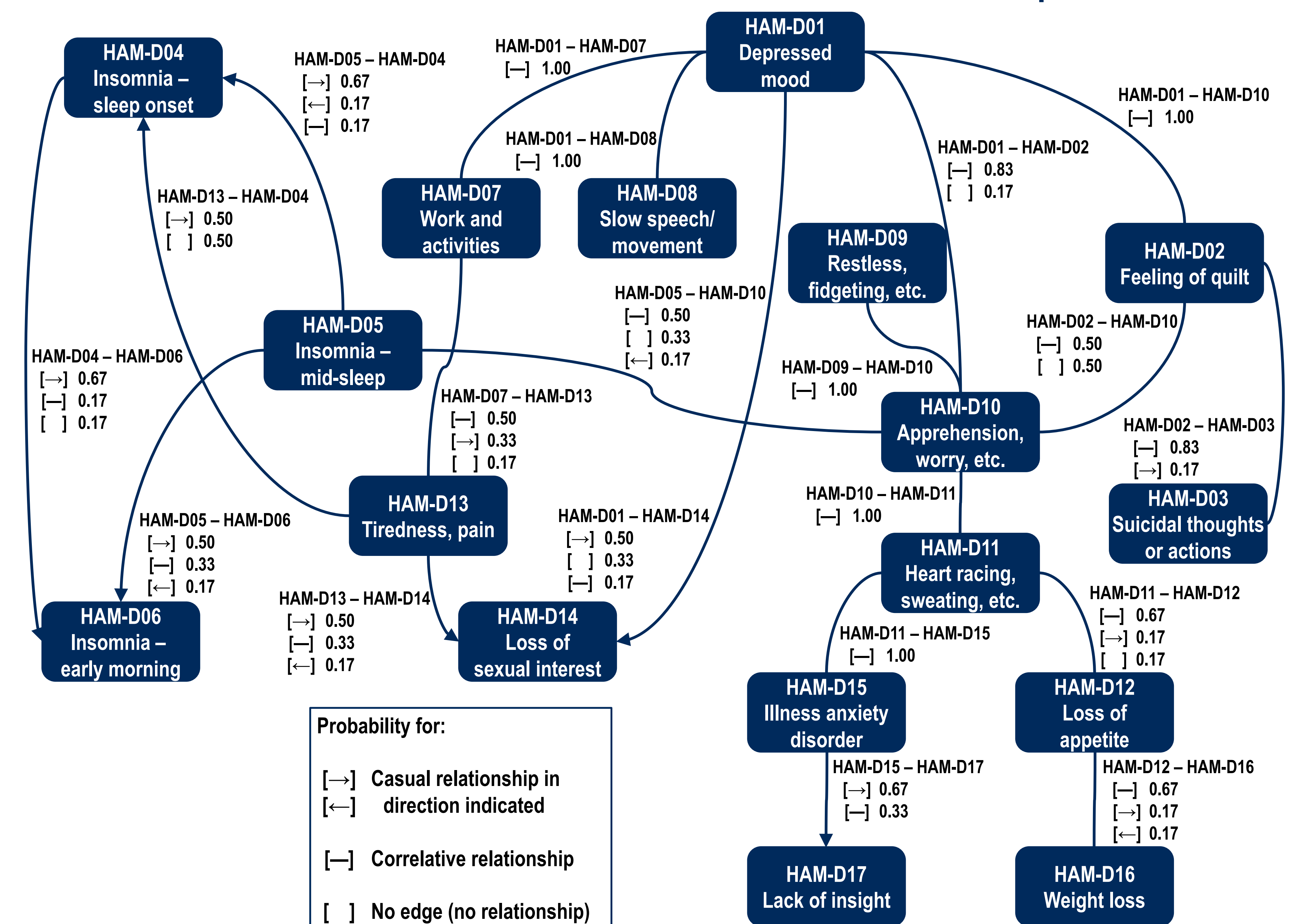
Methodology

Utilizes data from 10 randomized clinical trials covering a total of 2,292 participants.

Employs causal discovery to discover the causal and correlational relationships among the MDD symptoms.

Results

Casual structure network with 7 causal relationships.



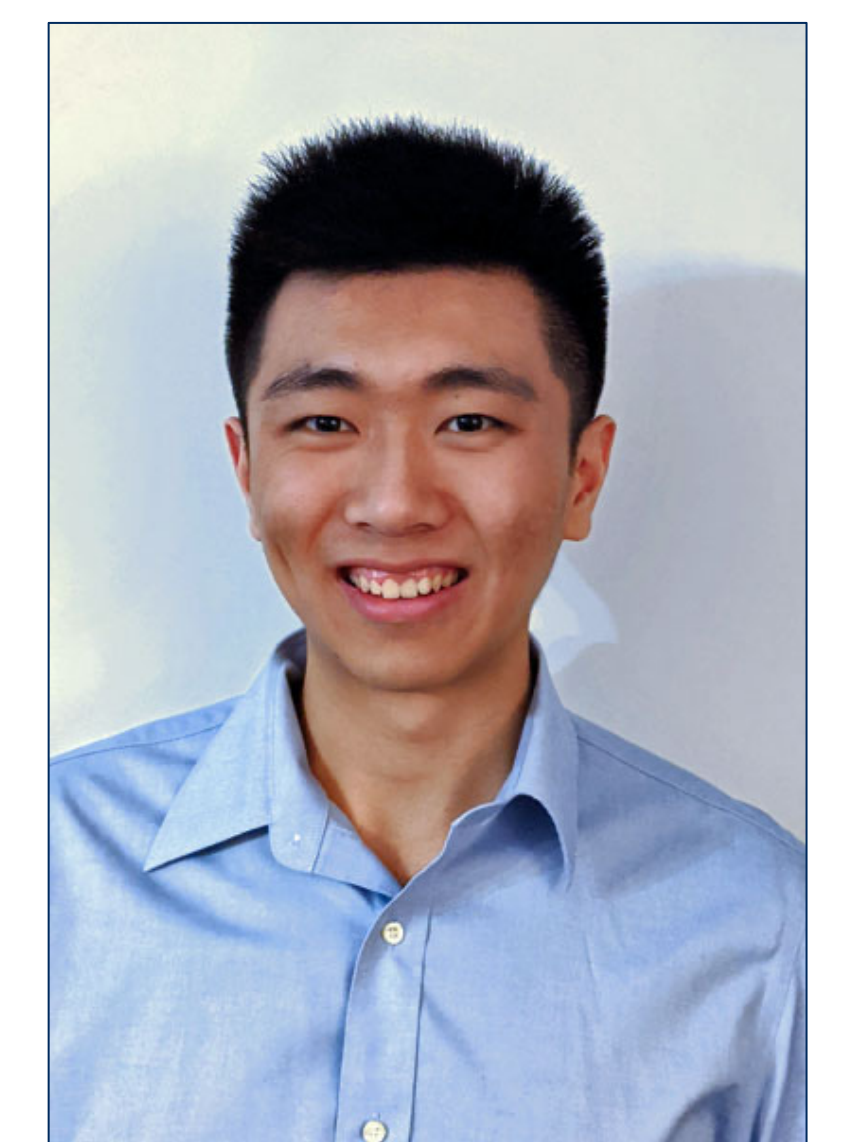
Centre Affiliates



Lu Wang
PhD Student



Mark Chignell
Professor



Haoyan Jiang
PhD Student