Developing an innovative web-based application to classify injured workers

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Every Day Matters
Highlighting the Importance of Timely Interventions and Support

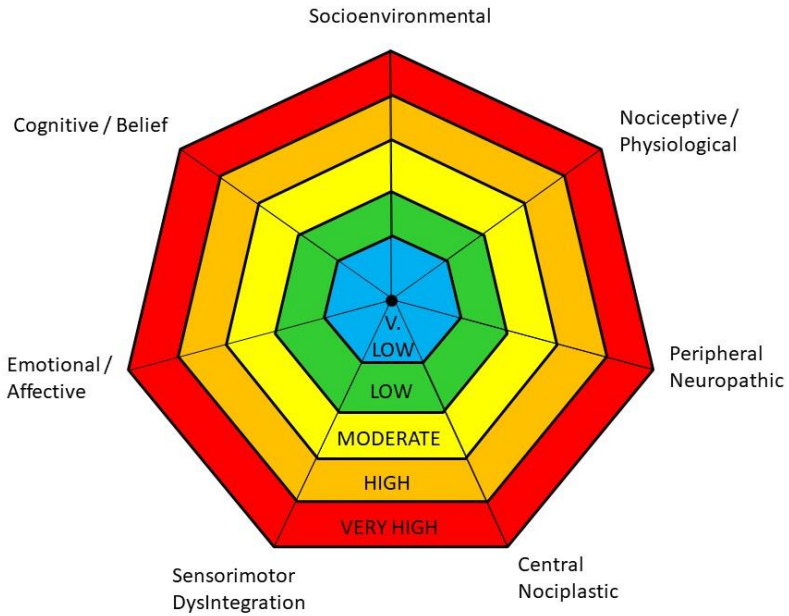
- **Innovative Patient Categorization:**
Developing strategies to classify patients based on their responses to acute injuries can help identify those at risk for poor recovery.

- **Focused Clinical Approach:**
By understanding pain sub-types in both acute and chronic contexts, healthcare providers can streamline clinical histories and investigations.

- **Tailored Interventions:**
This targeted approach allows for more effective and personalized treatment plans, enhancing patient outcomes.

Research Informing Innovation

- Two studies to date, two independent cohorts
  - Study 1: Cross-sectional survey of military veterans with chronic pain
  - Study 2: Survey of acutely injured workers with 1 and 2 month follow-up
- Same questionnaires administered to both
- Questionnaires tapped each of the 7 ‘pain driver’ domains (*shown at right*)
- Latent Profile Analysis used to identify response patterns and classify phenotypes



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How was it developed?

USASP
US ASSOCIATION FOR THE STUDY OF PAIN

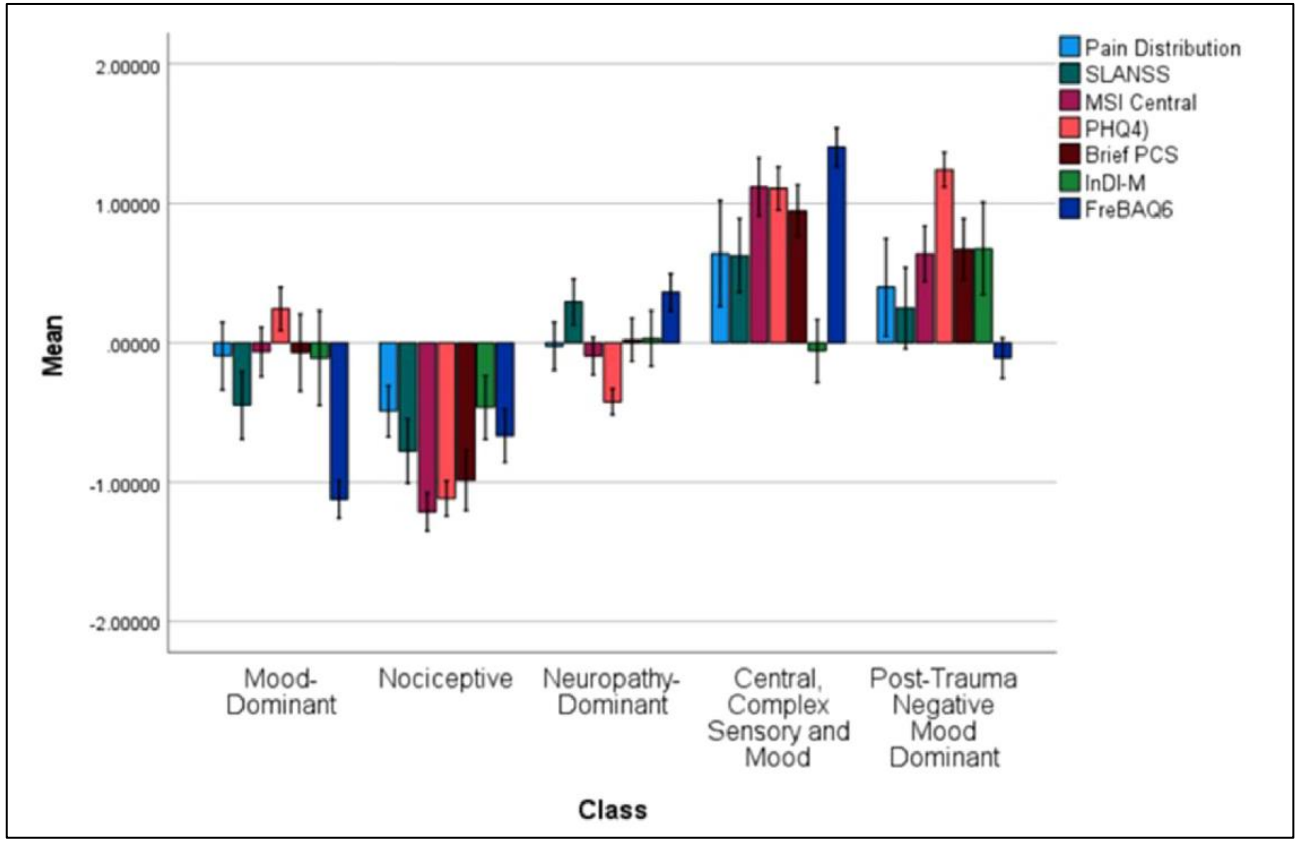
PUBLISHED BY ELSEVIER

The Journal of Pain, Vol 25, No. 8 (August), 2024: 104517
Available online at www.jpain.org and www.sciencedirect.com

Latent Profile Analysis of Canadian Military Veterans With Chronic Pain Identifies 5 Meaningful Classes Through Self-Report Measures

David M. Walton, Pavlos Bobos, and Joy C. MacDermid
School of Physical Therapy, Western University, London, Ontario, Canada

Study 1: Military Veterans with chronic pain (n = 320)



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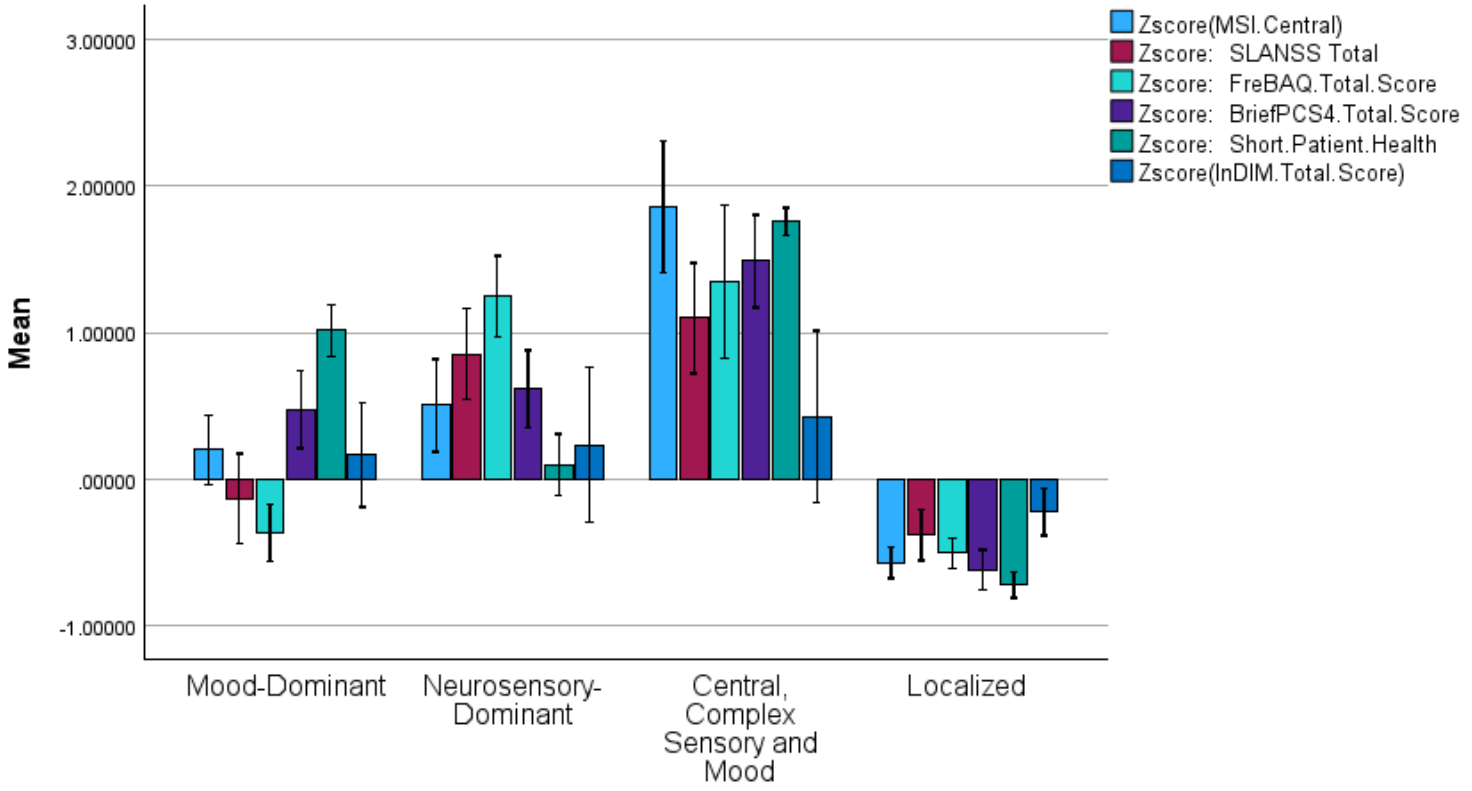
External Validation

Added 200 acutely injured workers

Total sample = 520



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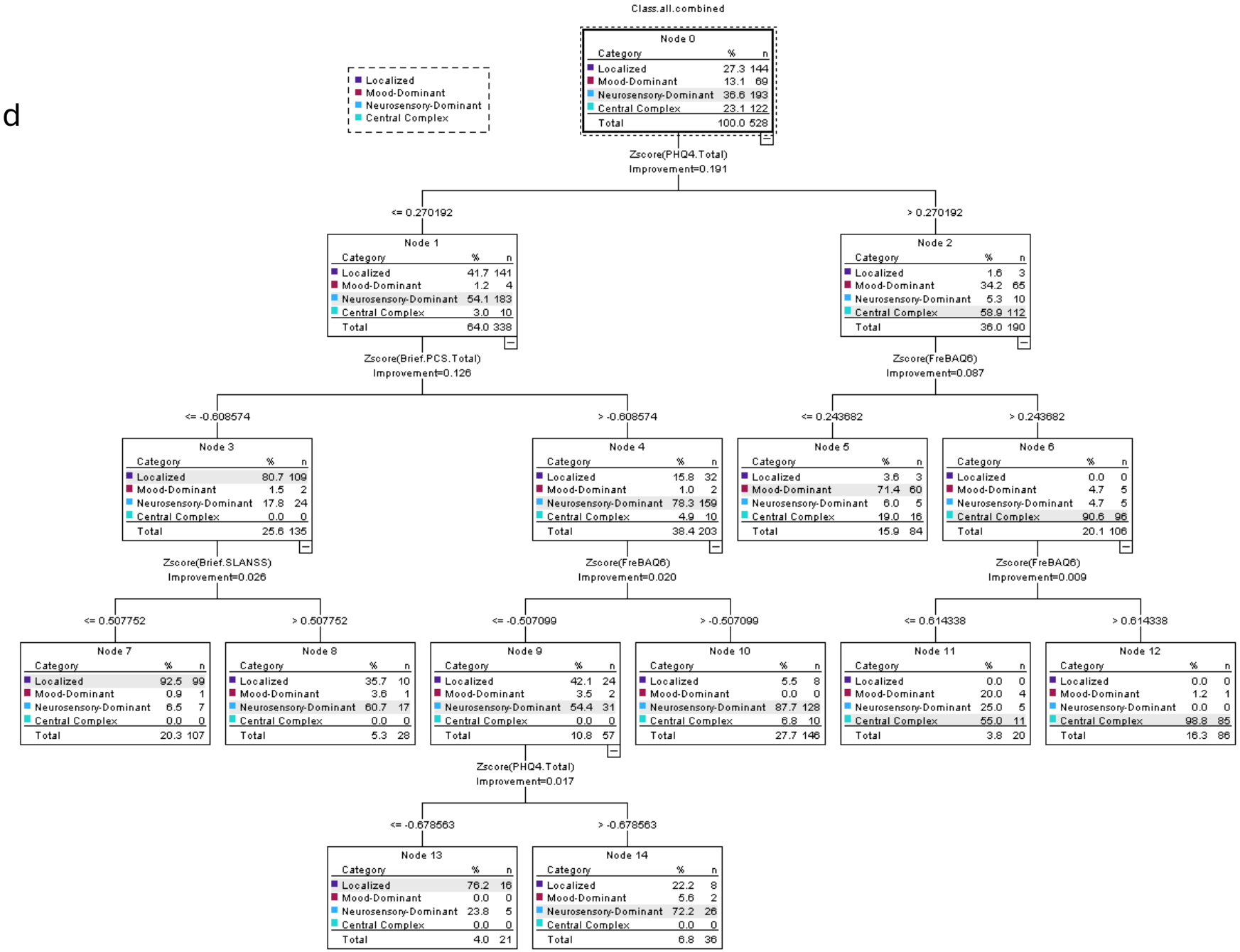
Classification and Regression Tree



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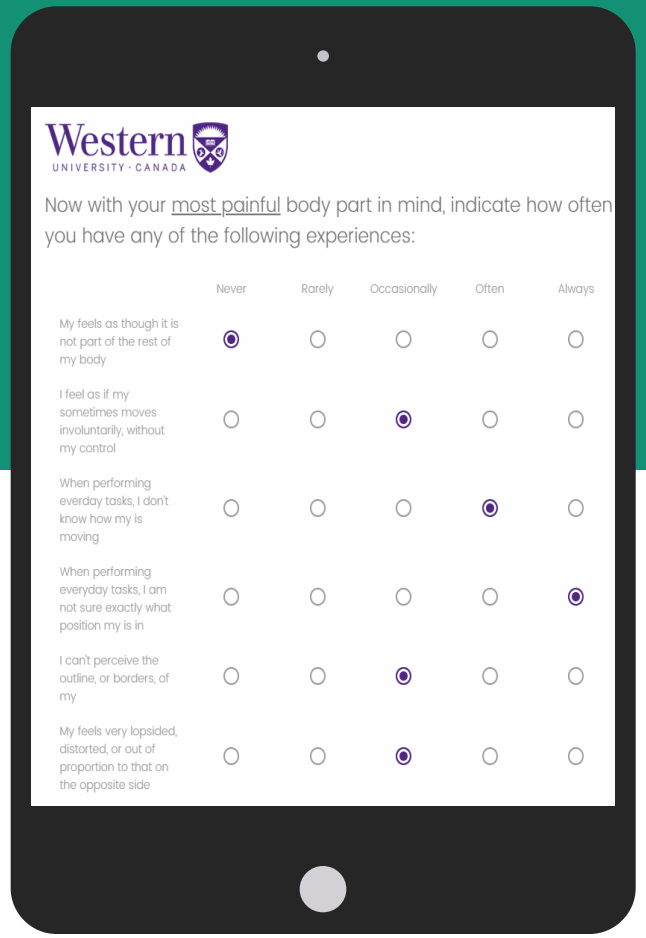

Enhancing Patient Care with the App

The app will tackle challenges in both acute and chronic contexts.

Analyze patient response patterns

Categorizing patients into specific pain sub-types

With a completion time of approximately 2 minutes, the app has significant potential to enhance clinical efficiency and provide more personalized care experiences.

CANSpine

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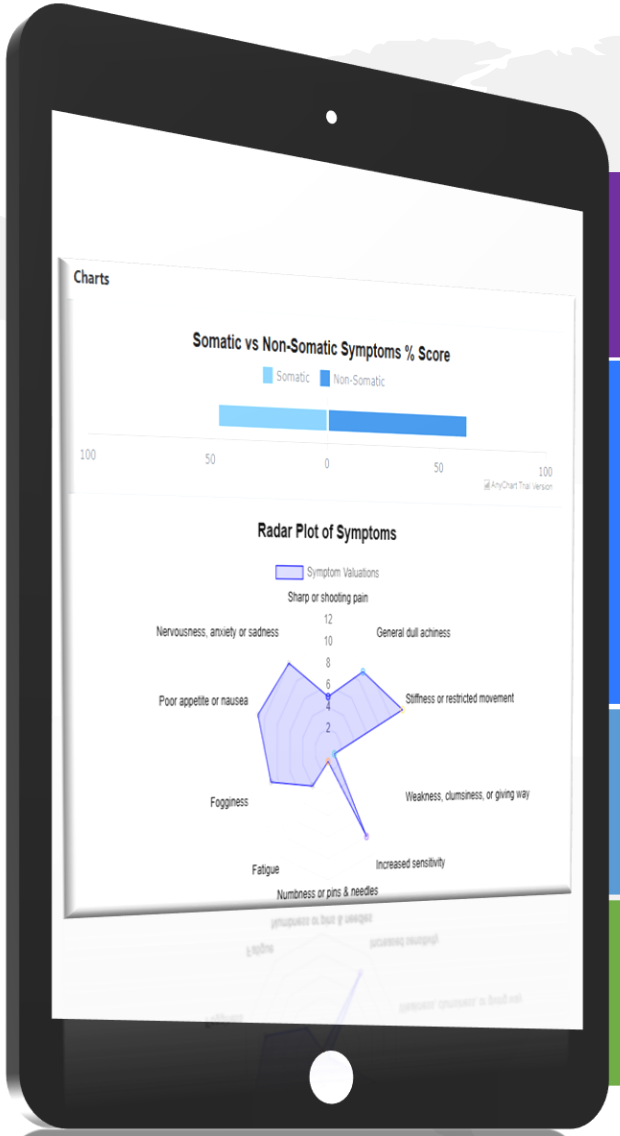
What is the app?



An interpretation aid for <u>clinicians</u>

Uses algorithms to:

- Better understand pain drivers
- Triage patients towards the right type of (initial) provider
- Help in deciding initial treatment options

Help <u>patients</u> decide what type of service provider might be the best first option

For <u>researchers:</u> Rapid inclusion/exclusion screening for trials

May have value for <u>funders</u> (e.g., WSIB)

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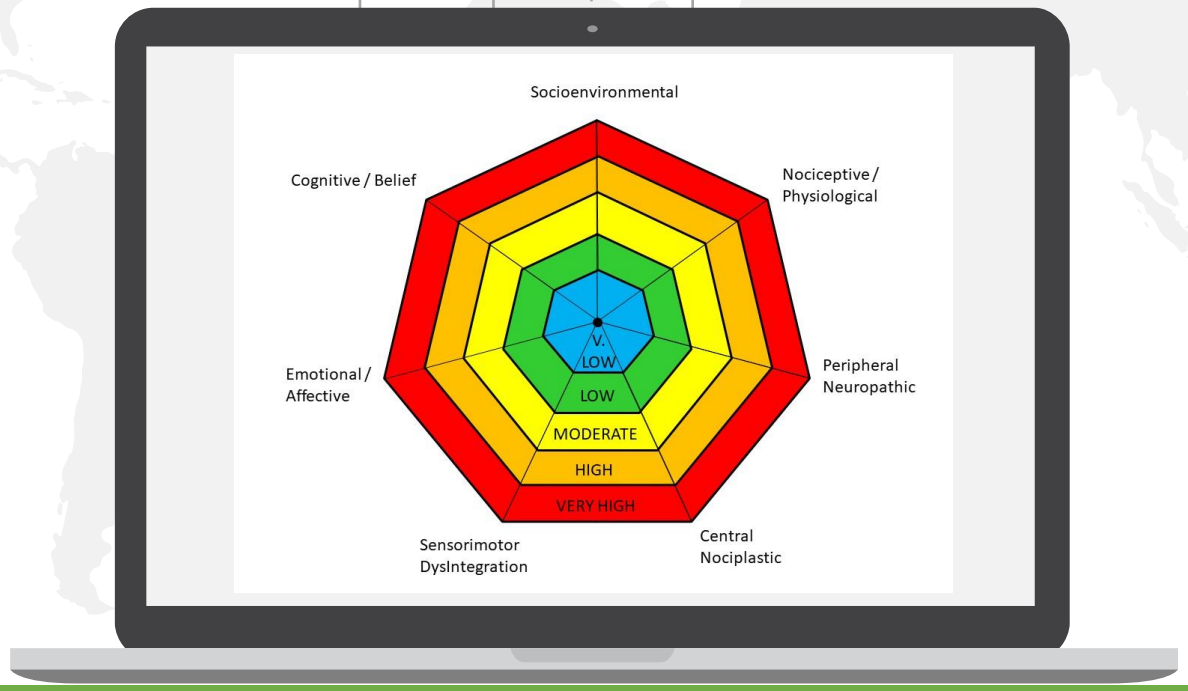
Mood dominant

Neurosensory dominant

Central, complex sensory and mood-dominant

Localized, inflammatory or mechanical dominant

What does it do?



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Summative Scores		Target Score for Meaningful Change	
Number of Symptoms:	**10 (100%)**	Number of Symptoms:	**8**
Mean Frequency:	**2.1 (70.0%)**	Mean Frequency:	**1.2**
Mean Bothersomeness:	**2.5 (62.5%)**	Mean Bothersomeness:	**1.5**
Somatic Symptoms:	**28 (47%)**	Somatic Symptoms:	**20**
Non-Somatic Symptoms:	**45 (62%)**	Non-Somatic Symptoms:	**39**

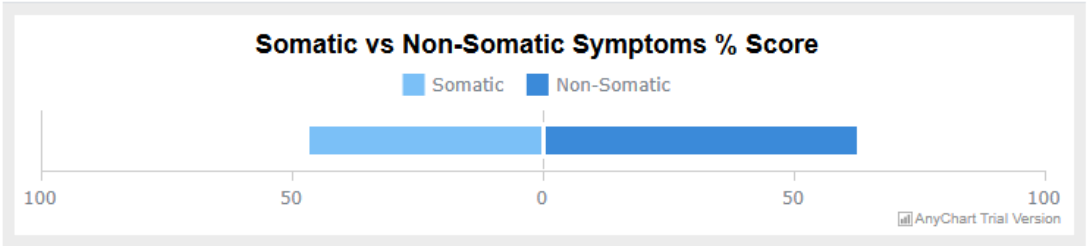
Screening Results

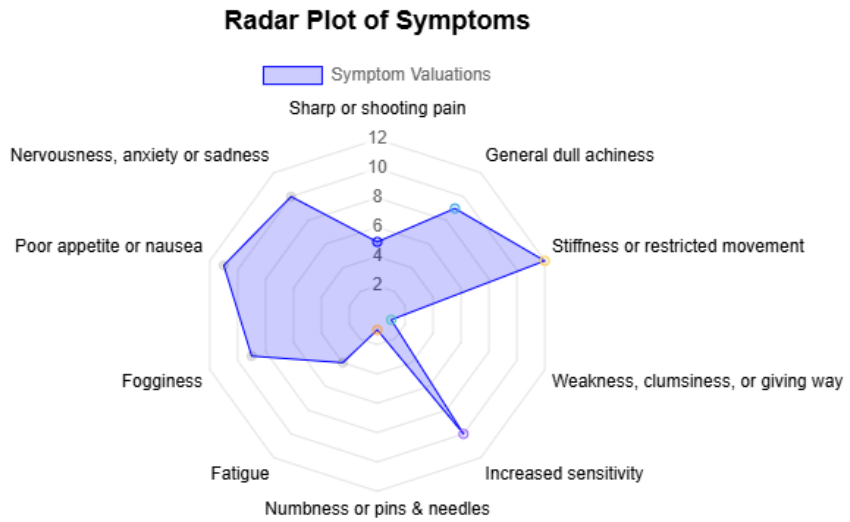
Full Recovery Predicted:	**Unlikely**
Potential Major Depressive Disorder:	**Likely**

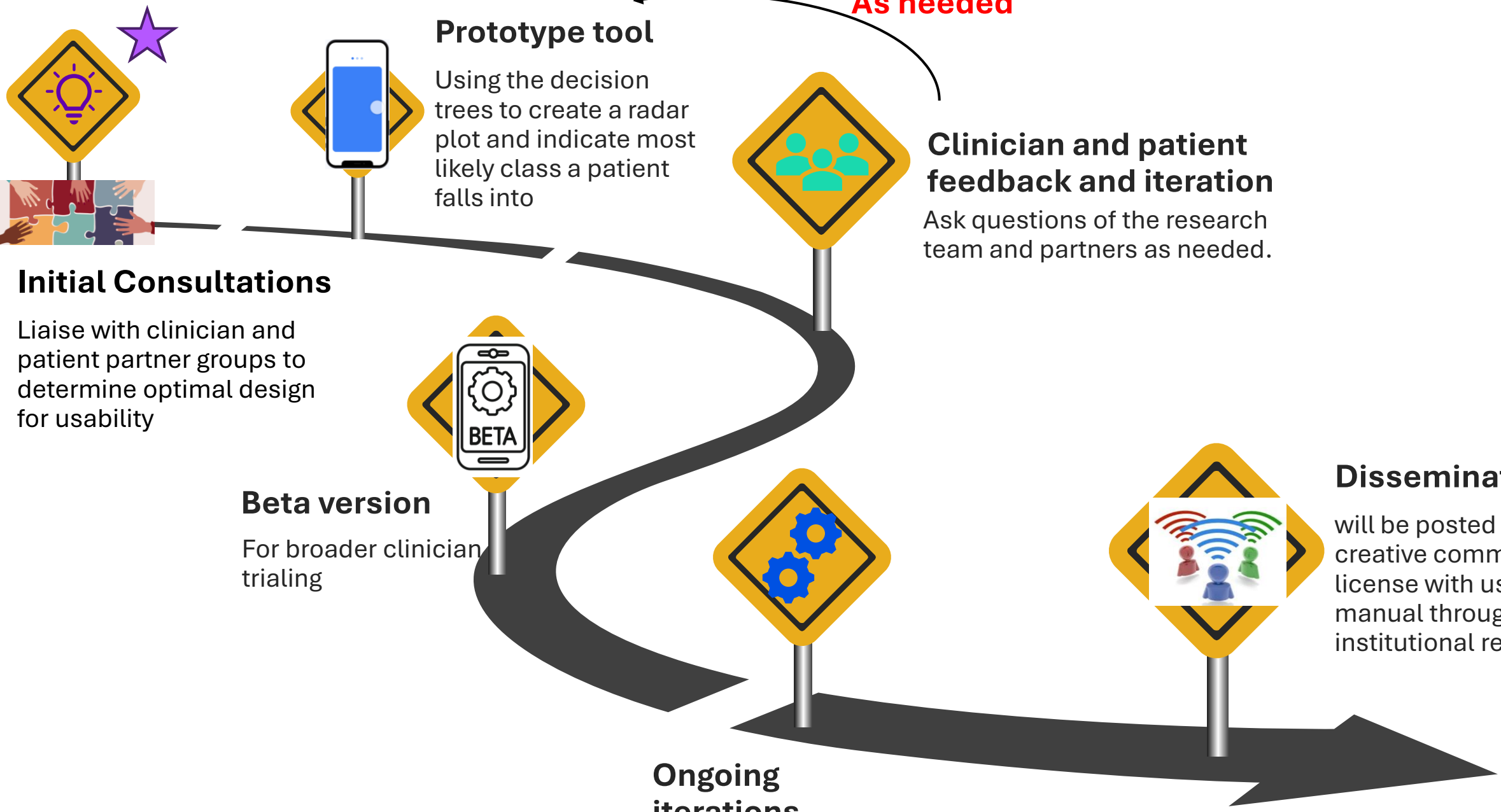
Other Comments

No comment provided.

Charts






As needed
Prototype tool
Using the decision trees to create a radar plot and indicate most likely class a patient falls into
Clinician and patient feedback and iteration
Ask questions of the research team and partners as needed.
Initial Consultations
Liaise with clinician and patient partner groups to determine optimal design for usability
BETA
Beta version
For broader clinician trialing
Dissemination
will be posted under a creative commons license with user manual through the institutional repository
Ongoing iterations

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THANK YOU!


Any Questions?