

Examining the underlying Psychological Inflexibility/Psychological Flexibility model components by using network analysis

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Introduction

- ∞ There is a growing interest in the research community in adopting innovative approaches to examine the **Psychological Inflexibility/Psychological Flexibility (PI/PF) model** and related components of the Acceptance and Commitment Therapy (ACT).
- ∞ Traditional approaches are useful for examining a model's general structure, however **they cannot evaluate interactions** among its components.
- ∞ **Network analysis** might be a solution since it allows the examination of a psychological construct as a system of interconnected variables.
- ∞ In **psychological networks**, observed variables are represented as **graphs of nodes**, which are **connected by edges**.
- ∞ Variables in a network might differ in level of:
 - **Strength** (i.e. the edge thickness; the size of the association)
 - **Degree** (i.e. the number of the edges attached to a node)
 - **Closeness** (i.e. the distance of a certain node to all others)
 - **Betweenness** (i.e. how many times a certain node is found between a pair of nodes)
- ∞ Networks appear promising since they provide information:
 - On how ACT components *relate to each other*.
 - Which ones *connect more strongly*.
 - Which are *more central to the model*.

Purpose

Aim 1: Construct the PI/PF component network and explore connections between the components.

Aim 2: Identify the most important ACT components within the model's network.

Method

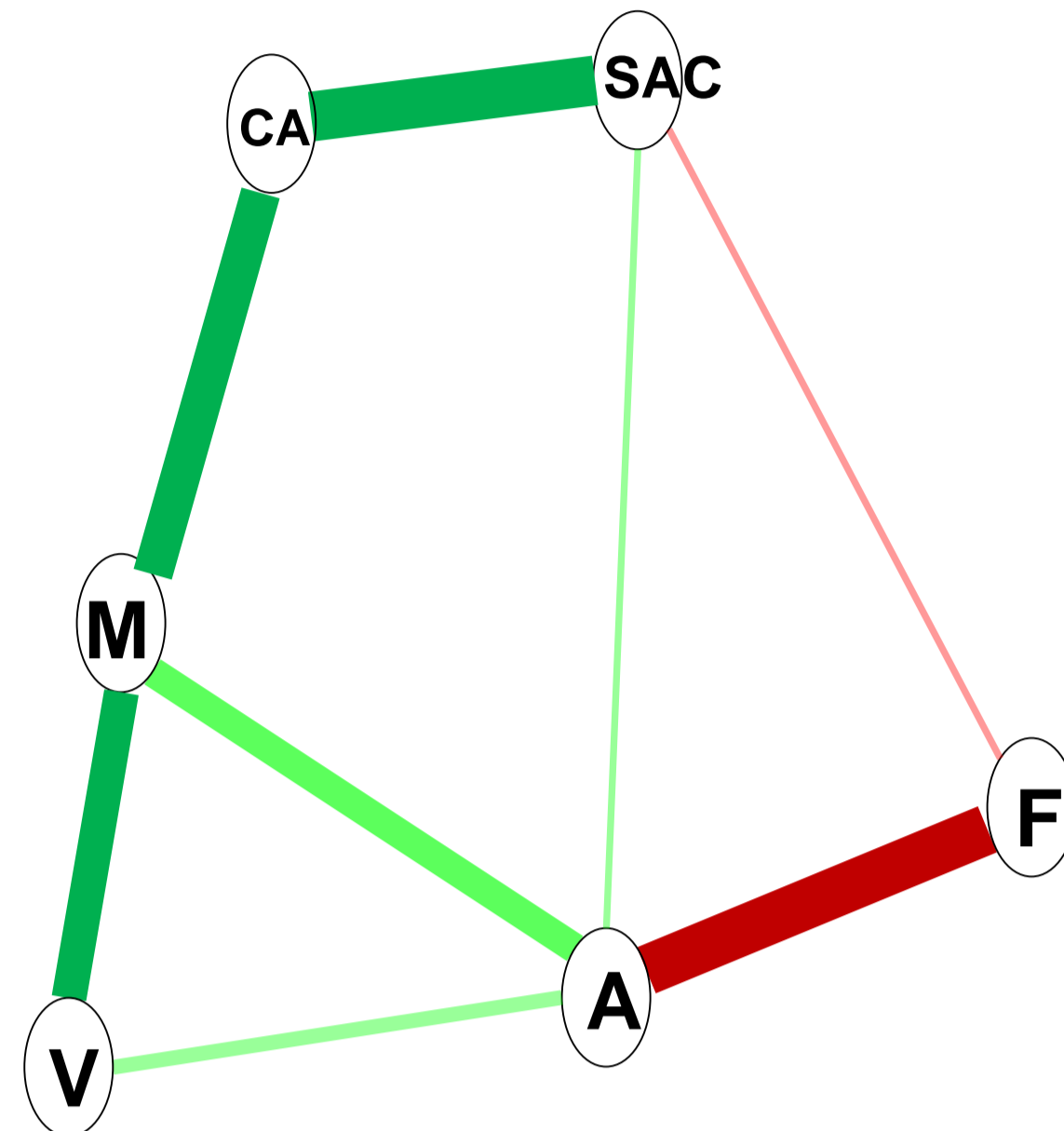
Sample

87 individuals (Mage=53.75, SD=13.37) with chronic pain who participated in a larger study examining the effectiveness of an ACT intervention, constituted the study's sample. Participants completed a battery of ACT measures assessing the different ACT components.

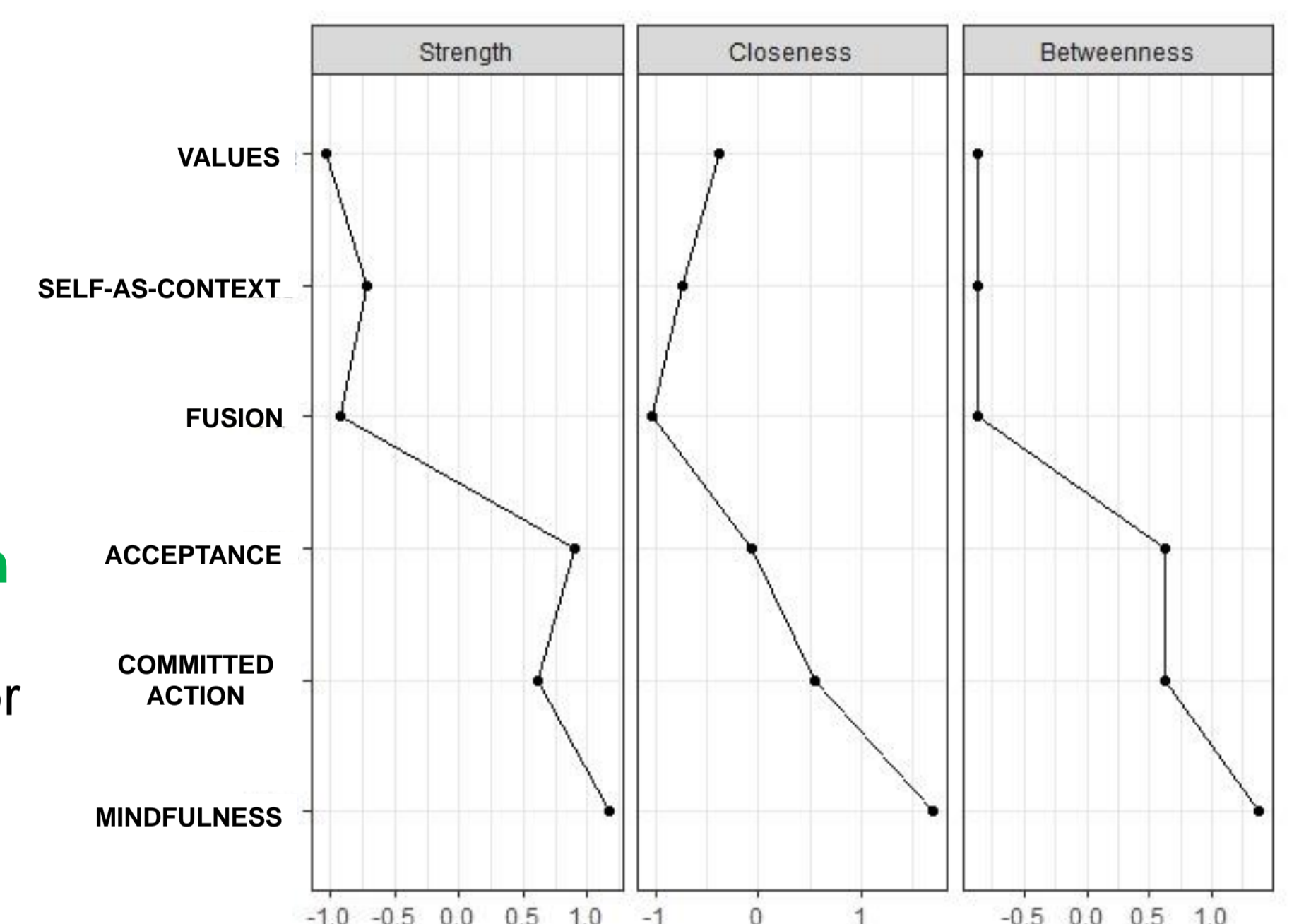
Measures

- ∞ **Chronic Pain Acceptance Questionnaire** (CPAQ; McCracken et al., 2004).
- ∞ **Psychological Inflexibility in Pain Scale** (PIPS; Wicksell et al., 2010) *Fusion subscale was used.
- ∞ **Self as Context Scale** (SACS; Karekla & Stavrinaki, 2017).
- ∞ **Cognitive and Affective Mindfulness Scale – Revised** (CAMS-R; Feldman et al., 2007).
- ∞ **Valued Living Questionnaire** (VLQ; Wilson et al., 2010).
- ∞ **Committed Action Questionnaire** (CAQ; McCracken et al., 2013).

Results



- ∞ The resulting network showed **connections among all ACT components**.
- ∞ The **strongest positive connection** was between **Committed Action (CA)** and **Self-as-Context (SAC): 0.31**.
- ∞ Other **positive associations** were found between:
 - **Mindfulness (M)** and **Committed Action (CA): 0.28**.
 - **Mindfulness (M)** and **Values-Clarification (V): 0.24**.
 - **Acceptance (A)** and **Mindfulness (M) : 0.16**.
 - **Acceptance (A)** and **Values-Clarification (V): 0.10**.
 - **Acceptance (A)** and **Self-as-Context (SAC): 0.05**.
- ∞ The **strongest negative connection** was between **Acceptance (A)** and **Fusion (F): 0.33**.
- ∞ Another **negative association** was between **Fusion (F)** and **Self-as-Context (SAC): 0.03**.
- ∞ **Acceptance (A)** has the **highest degree** in the network. It is connected to the majority (4/5) of the network's nodes.
- ∞ **Mindfulness (M)** and **Self-as-Context (SAC)** also have high degree. They are connected to three out of five nodes of the model.
- ∞ The **most central node** in the network, based on *indices of centrality* was **Mindfulness (M)** with the **highest strength** (1.16), **betweenness** (1.38), **closeness** (1.70).
- ∞ Other **central nodes** were:
 - **Acceptance (A)** and **Committed Action (CA)** with **high strength** (0.91 and 0.62, respectively), and **betweenness** (0.63, for both).
 - **Committed Action (CA)** with **high closeness** (0.54).



Discussion

- ∞ Findings showed that the **Mindfulness** holds a key role in the model, since it was the **strongest and closely connected** node in the network.
 - A **possible change** on Mindfulness might easily **activate changes** on all connected components. This improves our understanding on how a person might get more **psychologically flexible**, after **enhancing this skill**.
- ∞ **Acceptance** and **Committed Action** seem to be **important in the model**, since they have strong connections with other ACT components.
 - People might increase their **psychologically flexible behaviors**, if they are more **willing and open** to all internal experiences and **act based their valued goals**.
- ∞ The **strong positive association** between **Committed Action** and **Self-as-Context** was not expected to be so strong.
 - Probably a **measurement artefact**, because the SAC scale includes items that evaluate committed action behaviors.
- ∞ The **strong negative association** between **Acceptance** and **Fusion** was expected, since they come from opposing models (PF/PI, respectively) and are consistent with ACT theory.
 - They are **related** and have been conceptualized to **form the "open" aspect** of the Triflex ACT model (Harris, 2009; Hayes et al., 2011).
- ∞ The **positive connections** between **Mindfulness** and **Acceptance** with all other ACT components might underline **the need to strengthen** people's abilities to **be open and aware** of their internal experiences of the present moment to **improve their psychological well-being**.
- ∞ Although present findings are preliminary, they are **very helpful** in understanding how PI/PF model functions, which ACT components are central, and how they relate to each other.