

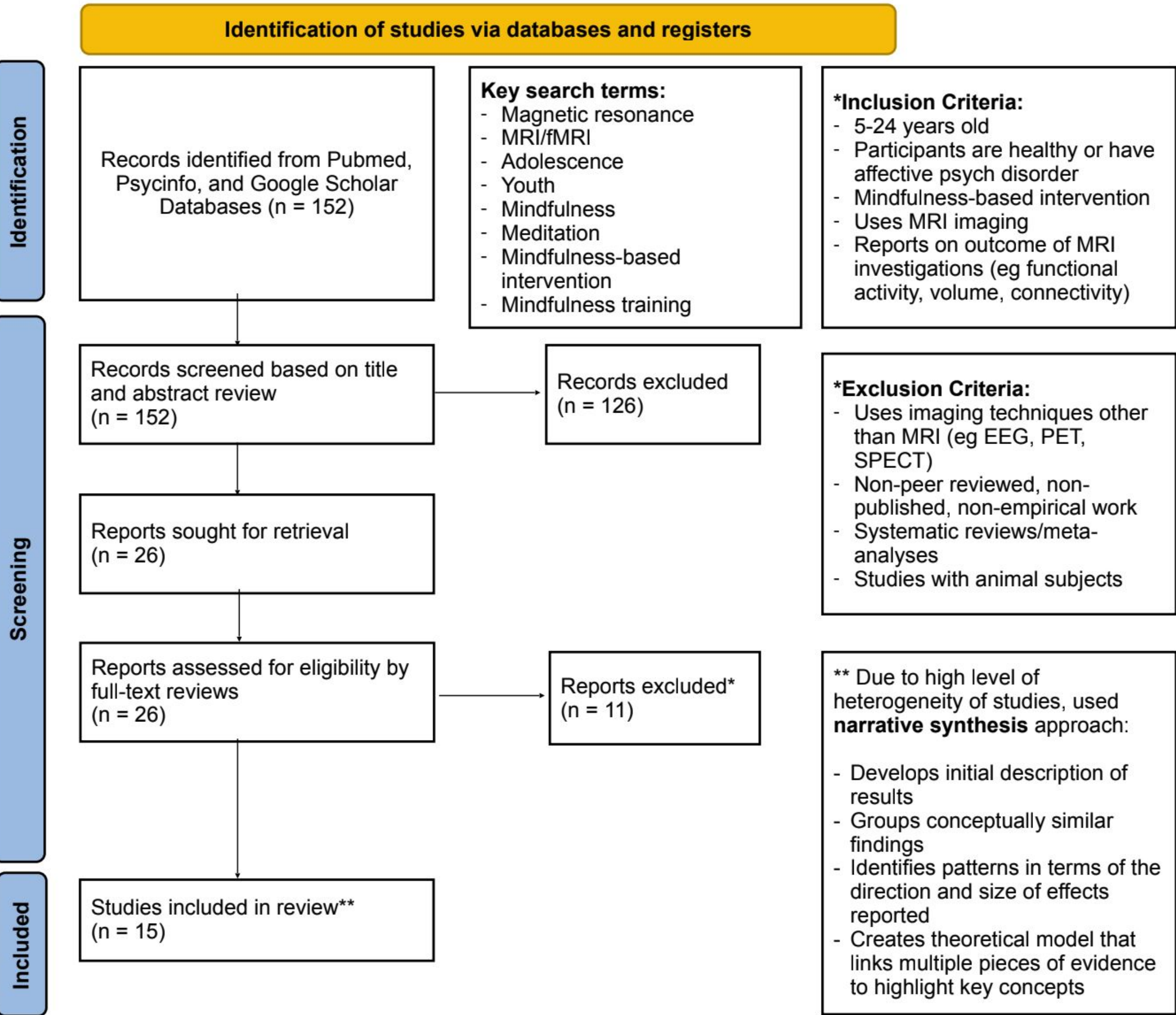
Systematic review of the neural correlates of mindfulness training in adolescents

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I. Background

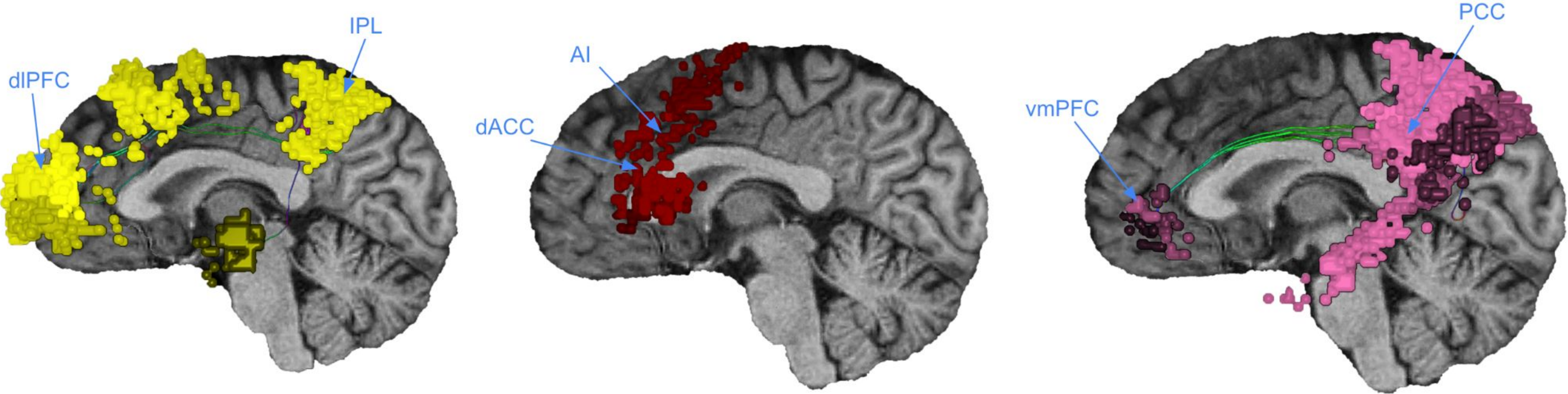
- Mental health disorders are a significant public health concern for adolescents in the U.S.
- One promising treatment in this population is mindfulness training.
- Mindfulness is the observation and acceptance of one's bodily sensations, thoughts, feelings, and environment from moment to moment.
- Developing an adolescent neural model of the effects of mindfulness can help us understand the mechanisms of symptom improvement.

II. Methods



III. Results

Key Neural Networks in Adolescent Mindfulness



Central Executive Network

- Key nodes include dorsolateral prefrontal cortex (dlPFC) and inferior parietal lobule (IPL)
- Involved in decision making, inhibition, integrating info
- **Mindfulness training increases connectivity within CEN**

Salience Network

- Key nodes include anterior insula (AI) and dorsal anterior cingulate cortex (dACC)
- Modulates activity between CEN and DMN, processes emotions and pain
- **Mindfulness training increases connectivity within SN**

Default Mode Network

- Key nodes include posterior cingulate cortex (PCC) and ventromedial prefrontal cortex (vmPFC)
- Involved in introspection, daydreaming, rumination
- **Mindfulness training reduces connectivity within DMN**

IV. Conclusions

- There are distinct neural effects of mindfulness practice in adolescents.
- Adolescent mindfulness training reliably affects activation and connectivity in the CEN (↑), SN (↑), DMN (↓), and amygdala (↓).

Mindfulness training in adolescents is associated with changes in functional connectivity and activation in the central executive network, salience network, default mode network, and amygdala.

