

## **Long-term recovery from opioid use disorder: identification of recovery subgroups and their association with opioid use, treatment, and quality of life**

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**Aims:** *Limited information exists regarding subgroups of individuals in recovery from opioid use disorder (OUD) following treatment, and how subgroups relate to key outcomes. We utilized a data driven approach to identify important dimensions of recovery, characterize recovery subgroups, and assess their association with opioid use, treatment utilization, and quality of life.*

**Methods:** *N=216 individuals enrolled in RECOVER-LT (NCT04577144), a single 4-year follow-up of individuals with OUD who participated in a 2-year observational study (NCT03604861) following a phase 3 clinical program. We used Principal Component Analysis on psychosocial and opioid dependence variables to identify dimensions of recovery and k-means clustering to classify individuals into distinct recovery subgroups.*

**Results:** *Three dimensions of recovery were identified: Depression, Opioid withdrawal, and Pain. k-means clustering identified four recovery subgroups stratified by: High-functioning (minimal depression, mild withdrawal, no/mild pain), Pain (minimal depression, mild withdrawal, moderate pain), Depression (moderate depression, mild withdrawal, mild/moderate pain) and Low-functioning (moderate depression, moderate/severe withdrawal, moderate/severe pain). Recovery subgroups were associated with important outcomes including DSM-5 criteria ( $p<0.001$ ), remission status ( $p<0.001$ ), recent opioid use ( $p<0.001$ ), treatment utilization ( $p<0.001$ ), and physical health, psychological, environment and social relationship quality of life domains ( $ps<0.001$ ).*

**Conclusions:** *We identified three novel dimensions of recovery from OUD, synthesized these dimensions, and characterized four distinct recovery subgroups. These subgroups aligned with OUD diagnostic criteria and were associated with contemporaneous opioid use, treatment utilization, and quality of life outcomes. These results highlight the multidimensional, individualistic nature of OUD recovery and emphasize the need for personalized addiction medicine.*

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