

**1. Assessing problematic use of medicinal cannabis among chronic pain patients:
Initial validation of a self-report questionnaire.**

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4. Objectives: The use of medicinal cannabis (MC) has increased dramatically in the past decades. However, diagnosing addiction in medical context may be fundamentally different from diagnosing addiction in non-medical context, as the use of addictive substances for medical purposes commonly entails physical dependence, which does not necessarily imply pathology among medical patients. The aim of this study was to develop and validate a self-report questionnaire focusing on problematic use of MC.

5. Materials and methods: A list of 36 items was developed using: (a) existing instruments for assessing aberrant use of prescription opioids and non-medicinal cannabis addiction; (b) systematic review of negative experiences reported by MC users; and (c) in-depth interviews with MC users. A sample of 390 participants self-identifying as chronic pain patients prescribed MC was recruited using the Amazon Mechanical Turk platform. Participants were requested to rate the frequency for which each item occurred in the past three months. Participants also completed a set of validated instruments assessing pain intensity, depression, anxiety, stress, alcohol use disorders (AUD), quality of life and insomnia.

6. Results and conclusions: 17 items were omitted from the initial list due to clinical irrelevancy. Next, exploratory and confirmatory factor analyses resulted in a single factor ($\chi^2=426.89$, $p<.001$; CFI=.941, TLI=.930; RMSEA=.071, 95%CI[.063, .079]; SRMR=.040) with all factor loadings above .50 ($p<.001$). We then used two highly relevant external indicators: depression and AUD ($\beta=.09$, $p=.038$; $\beta=.60$, $p<.001$; respectively; $r=.44$, $p<.001$), to identify items which did not contribute to the explained variance. This resulted in eight items which represented the sample population regardless of critical background characteristics.

After controlling for pain intensity and daily quantity of MC use, the final questionnaire significantly correlated with adjunct measures of stress, anxiety and insomnia, suggesting that it may be valuable in assessing problematic MC use among chronic pain patients.

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