Received: 11 February 2025 | Accepted: 15 September 2025

DOI: 10.1111/add.70212

REVIEW

ADDICTION SSA

Systematic review of patient-reported outcome measures for opioid use disorder recovery

Jarratt D. Pytell[1,2,3] | Dennis Pales[1] | Caty Simon[4,5,6] | Jarett Beaudoin[7] | Ahmed M. Y. Osman[8] | Ellie Svoboda[9] | Paul J. Christine[1,2,3] | Daniel Matlock[1,10] | Robert Schwartz[11] | Ingrid A. Binswanger[1,3,12,13]

[1]Department of Medicine, University of Colorado School of Medicine, Aurora, CO, USA

[2]Department of General Internal Medicine, Denver Health Medical Center, Denver, CO, USA

[3]Institute for Health Research, Kaiser Permanente Colorado, Aurora, CO, USA

[4]NC Survivors Union, Greensboro, NC, USA

[5]Whose Corner Is It Anyway, Holyoke, MA, USA

[6]Department of Internal Medicine, Yale School of Medicine, New Haven, CT, USA

[7]Department of Family and Community Medicine, University of California Davis School of Medicine, Sacramento, CA, USA

[8]Department of Pharmacy Practice, Kulliyyah of Pharmacy, International Islamic University Malaysia, Kuantan, Malaysia

[9]Strauss Health Sciences Library, University of Colorado Anschutz Medical Campus, Aurora, CO, USA

[10]VA Eastern Colorado Geriatric Research Education and Clinical Center, Denver, CO, USA

[11]Friends Research Institute, Baltimore, MD, USA

[12]Chemical Dependency Treatment Services, Colorado Permanente Medical Group, Denver, CO, USA

[13]Department of Health Systems Science, Kaiser Permanente Bernard J. Tyson School of Medicine, Pasadena, CA, USA

Correspondence
Jarratt D. Pytell, Department of Medicine, University of Colorado School of Medicine, Mail Stop B180, 12 631 E. 17th Ave, Aurora, CO 80045, USA.
Email: jarratt.pytell@cuanschutz.edu

Funding information
J.D.P. received funding from the National Institutes of Health under Award Number

Abstract

Background and aims: Recovery-focused measurement-based care of opioid use disorder (OUD) could inform clinical care by assessing patient-reported outcome measures (PROMs). We sought to identify and describe validated PROMs which assess recovery among patients with OUD, focusing on PROM characteristics, recovery domains and pragmatism for implementation in outpatient settings.

Methods: A preregistered (PROSPERO: CRD42023394770) systematic review was conducted using the Consensus-based Standards for the selection of health Measurement Instruments (COSMIN) guidelines. Validated PROMs that assessed at least one of 17 recovery domains and contained fewer than 50 items were identified. The review described PROM characteristics, including the number of items, subscales, response options and time to complete. Content validity was assessed from the patient perspective. Recovery domains assessed were categorized into 17 domains, including substance-related, psychological health and quality of life. The presence of clinically relevant score changes was assessed. Hierarchical clustering was performed to describe co-occurrence patterns among recovery domains.

Results: A total of 122 studies were included, identifying 90 unique PROMs. Three PROMs (3%) received a 'moderate' grade on content validity. PROMs assessed a median of 4 recovery domains [inter-quartile range (IQR) = 1–7], with substance-related outcomes being most common (51%), followed by psychological health (49%), relationships (41%) and physical health (36%). Nineteen PROMs (21%) contained fewer than 10 items, making them highly pragmatic for clinical use. Fourteen PROMs (16%) assessed 8 or more recovery domains and were categorized as comprehensive. Two (2%) comprehensive PROMs were developed with input from individuals with lived experience of substance use, providing a patient-centered perspective. Five PROMs (6%) defined clinically relevant score changes.

Conclusions: There are many patient-reported outcome measures (PROMs) which assess diverse and often broadly defined recovery domains that can be used in recovery-focused measurement-based care of opioid use disorder; however, few PROMs are brief enough to be pragmatic for clinical use, nearly all lack clinically relevant score changes that could help inform treatment decisions, and few were developed with input from people with lived experience.

K23DA060358. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

KEYWORDS
measurement-based care, opioid use disorder, patient-reported outcome, primary care, recovery, systematic review

INTRODUCTION

Measurement-based care of opioid use disorder (OUD) involves the collection of patient-level data to initiate, adjust and monitor response to treatment [1]. Common sources of data include urine toxicology, medication adherence and self-reported substance use. Urine toxicology only detects the presence or absence of substances, lacks nuance and is less feasible for telemedicine, which is increasingly integrated into outpatient care [2]. Medication adherence is imperative to supporting recovery and reducing overdose [3], however, long-term medication treatment is not the goal for many patients [4]. Although self-reported substance use is often relevant, it does not comprehensively assess recovery from OUD, such as improvements in mental health, social reintegration and quality of life, and abstinence may not be consistent with patients' recovery goals. There is a need for more comprehensive assessments of patients' recovery status to aid in measurement-based care for patients with OUD.

Patient-reported outcome measures (PROMs) involve systematically collecting self-reported patient data regarding specific clinical constructs (e.g. depressive symptoms) and are an established standard of care for many chronic diseases. The use of PROMs centers treatment on the patient self-report, which can improve communication between patients and clinicians and provide objective data for clinicians to support medical decision-making [5]. Measurement-based care of OUD using PROMs to assess recovery may improve patient-centered OUD care [6].

Because recovery is a multi-dimensional process that extends beyond substance use, measurement-based care of OUD must be structured to assess the broad range of recovery-related domains that matter to patients [7, 8]. Measurement-based care of OUD would be responsive to patients' individual near and long-term goals. Near-term goals may include abstinence, reducing the amount of harm associated with opioid use or reducing the consequences of opioid use. The long-term goal is most often recovery from OUD. Recovery is a broad concept, which the Substance Abuse and Mental Health Services Administration (SAMHSA) defines as a process of change to improve one's 'health and wellness, live a self-directed life, and strive to reach their full potential' [9]. The Betty Ford Foundation Consensus Panel described recovery as 'a voluntarily maintained lifestyle characterized by sobriety, personal health, and citizenship' [10]. Related to the construct of recovery is remission from OUD, narrowly defined as not meeting diagnostic criteria for OUD [11]. Therefore, the domains of a patient's life that need to improve for them to consider themselves 'in recovery' could vary for each patient. Measurement-based care of OUD guided by recovery would, therefore, require assessments of several domains, including combinations of substance-related outcomes, physical health, mental health and various social factors, including relationships, employment or housing [12]. Implementing recovery-focused PROMs would allow clinicians to obtain clinically relevant data, enabling them to tailor treatment plans to the unique recovery goals of each patient.

Adding to the complexity of defining recovery is how to make recovery assessment practical for routine clinical care, particularly primary care, where competing demands exist to address multiple clinical concerns [13]. Pragmatic PROMS need to be important to all stakeholders, including patients, clinicians and administrators. The burden of collection would need to be low, provide actionable information and be sensitive to change [14]. In the context of OUD care, PROMs need to be responsive to the stage of care, ranging from early care, where the focus is on initiating and stabilizing on medications for OUD in outpatient or residential treatment settings, to later care, when patients may focus on other domains of recovery [15]. Several reviews have been conducted to describe PROMs that could be used for measurement-based care, but were not focused on outpatient and primary care or did not focus on the construct of recovery [16–18]. There is a gap in the literature regarding how best to measure recovery in routine care [19]. Addressing this gap could support clinicians and healthcare systems in delivering recovery-focused care by centering outcomes obtained from patient self-assessment. The study aims to identify the existing validated PROMs that assess OUD recovery, describe their characteristics and quality and describe PROMs that are pragmatic for use in outpatient care settings.

METHODS

We conducted a systematic review to describe validated PROMs assessing recovery. The review was pre-registered (PROSPERO CRD42023394770) and presented following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines [20].

Eligibility criteria

PROM eligibility was assessed based on the population, context, PROM concept or outcome and PROM length. The pre-specified population needed to include people with OUD over the age of 18. After piloting our search strategy, it was clear we missed relevant studies describing the validation of PROMs because those studies would document general 'drug' use in the population rather than specific substances. We decided to deviate from the pre-registered to include studies that documented general drug use in an effort to be inclusive of PROMs that might be relevant to patients using opioids. Context needed to include outpatient care settings, residential or specialty addiction inpatient programs or populations sampled from the community. We excluded studies that only included patients from hospital

inpatient settings. The PROM concept or outcome needed to assess an aspect of recovery. We used the recovery domains definitions [7] and quality of life [21], described in detail below, to identify eligible PROMs. The amount or route of substance use may influence recovery, but these factors are not direct measures of recovery, and non-abstinent pathways to recovery are possible [22, 23]. Therefore, PROMs that assessed only the amount or route of use were excluded, and those that included additional recovery domains were retained. Patient reported experience measures were included if they met the inclusion criteria. PROMs containing more than 50 items were deemed not pragmatic for routine clinical use and were excluded [24]. Full-text articles written in a language other than English and conference abstracts were excluded.

Search strategy

The search strategy was conducted using to the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) guidelines search filter [25]. A health sciences librarian (E.S.) worked with the team to create a comprehensive search strategy based on the COSMIN search guidelines. This search strategy was then peer-reviewed by another health sciences librarian (Table S1). The full search was conducted on 13 January 2023 and updated on 17 April 2024. Databases searched included Ovid MEDLINE ALL, Embase, Web of Science and American Psychological Association PsycInfo, and all data bases were searched from their inception. Duplicates were identified and removed within EndNote then uploaded into Covidence, where additional duplicates were identified and removed. The authors hand-searched included studies to identify additional relevant papers for inclusion in the systematic review.

Study selection and data extraction

The first round of review assessed the title and abstract of all papers. A second round assessed the full text for inclusion. At each round, two authors independently assessed each paper for inclusion (J.D.P., C.S., J.B., A.M.Y., D.P., P.J.C.), and a third author adjudicated any conflicts. Two authors (J.D.P., C.S., D.P., P.J.C.) independently extracted data from the included papers with a third author adjudicating conflicts. Characteristics extracted from each study included the year, study population characteristics, study design, country and characteristics of the PROM. The PROM characteristics included the number of items, subscales, response options, time to complete and the recovery domains the PROM assessed.

To describe the recovery domains, we applied the definitions of 15 recovery domains outlined by Neal *et al.* [7], to which we added quality of life (QOL), which is often assessed through generic QOL or health-related QOL measures [21]. The final recovery domains list included 17 domains, which the research team reviewed and updated to create final definitions (Table S2). Each individual item (question) of the PROM was reviewed to identify which recovery domains were assessed. PROMs constructed solely as a generic QOL or health-related QOL measure were noted as such, and we did not evaluate the individual items. We identified PROMs with a defined clinically important score change, which may include formal testing of minimally important change, minimally important difference or smallest detectable change [26].

The pre-registered plan to assess risk of bias or quality using COSMIN guidelines was not feasible because of the number of included studies. For this situation, the COSMIN manual recommends narrowing the quality assessment [27]. Content validity is the degree to which the PROM measures the construct it is reported to measure and is considered the most important construct to assess [27]. Because recovery is an inherently individualized construct, we assessed content validity from the patient perspective [28]. This included evaluation of three key features: relevance, comprehensiveness and comprehensibility, guided by six targeted questions. Each study was independently assessed by one author (J.D.P., D.P., P.J.C.) and the overall Grading of Recommendations, Assessment, Development and Evaluations (GRADE) was calculated by combining scores [29].

Data were exported from Covidence to R/RStudio version 4.4.1 for analysis. The first analysis described the study characteristics and PROM characteristics. PROMs pragmatic for use in routine care, defined as having an established clinically relevant score or change in score and fewer than 10 items, are described in detail [24]. We examined the distribution of recovery domains by publication year and performed hierarchical clustering of recovery domains using the complete linkage method [30, 31]. A distance matrix was calculated based on the binary occurrence of recovery domains across PROMs, which was then used to create a dendrogram, which visualizes the co-occurrence patterns and groups recovery domains with similar distribution.

RESULTS

Study characteristics

Our search yielded 11 813 studies, with 8763 remaining after duplicates were removed and 295 studies progressing to the second-round review (Figure 1). A total of 108 studies were included after the second round of review. An additional 14 studies were identified during the hand-search of included studies, resulting in 122 studies being included. The earliest study was published in 1982, with half of the studies being published after 2015. Most PROMs were validated in populations in the United States (n = 40, 32%), United Kingdom (n = 17, 14%) or Australia (n = 16, 13%) and had a median of 273 participants [interquartile range (IQR) = 146–537]. Cross-sectional study designs were most common (n = 66, 54%), followed by cohort studies (n = 44, 36%) and secondary analysis of randomized control trials (n = 11, 10%). Regarding substances the participants reported using, opioid use was reported in 84% (n = 103) of studies, while general drug use was specified in 26% (n = 32%). Other substances reported in studies included alcohol (n = 72, 60%), stimulants (n = 64, 53%), cannabis (n = 52, 43%), sedative-hypnotics (n = 33, 27%), tobacco/

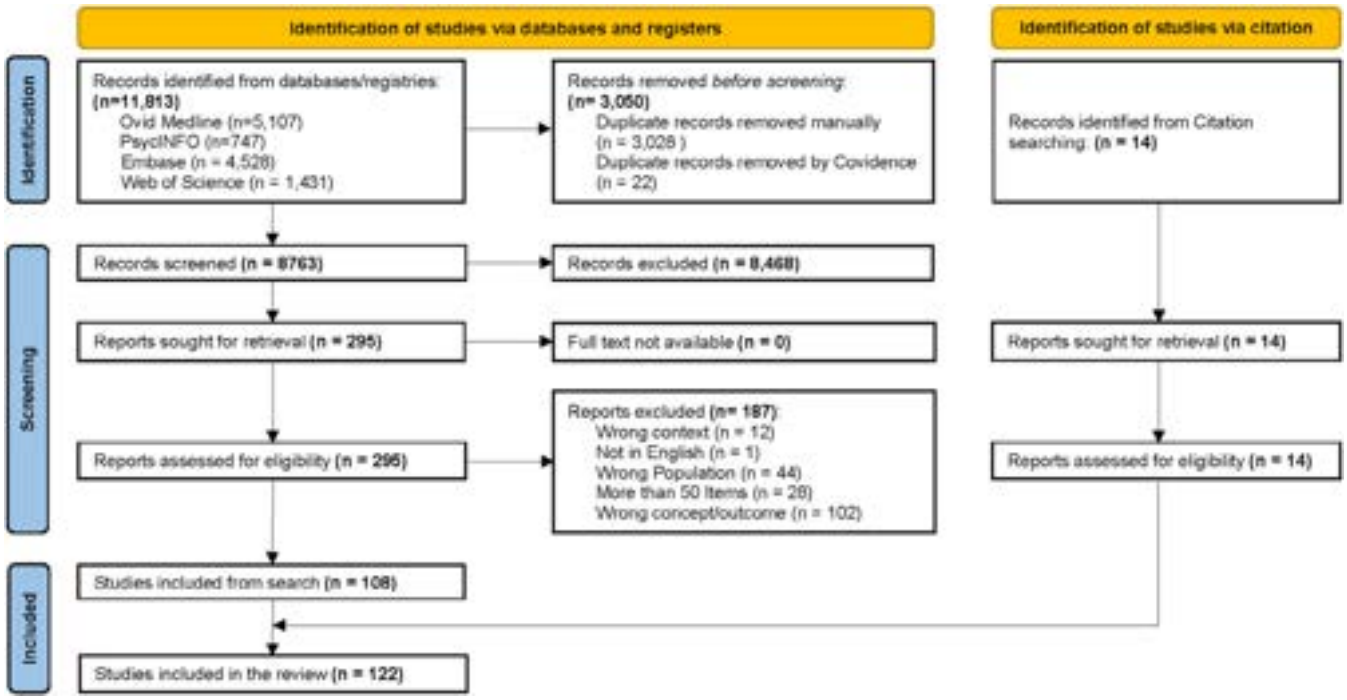

FIGURE 1 Flow diagram depicting the selection process for included studies.

nicotine (*n* = 13, 11%) and other substances (*n* = 11, 13%). Table S3 describes the study characteristics and Table S4 describes the details of the individual study.

PROM characteristics

From the 122 included studies, we found 90 unique PROMs (see Table S5 for individual PROM details, and a searchable list of PROMs is available at https://docjpytell.shinyapps.io/prom_sysrev_shiny/). Several PROMs were developed or validated in multiple studies, accounting for the higher number of studies relative to PROMs. The number of items in each PROM ranged from 1 to 47, with an average of 17 (SD = 11) (Table 1). Only 13 (*n* = 14%) PROMs reported the amount of time required for completion, with an average time of 8 minutes (SD =6) and a range from 1 to 16 minutes. Eleven PROMs (12%) had multiple response scales, with Likert response scales being the most common (*n* = 68, 76%), followed by numeric (*n* = 17, 19%) and dichotomous (*n* = 13, 14%). Many of the PROMs were unidimensional (*n* = 35, 39%), which means it measures a single underlying construct. The average number of subscales was 3 (SD = 2).

Content validation was largely absent in the included studies: 77 PROMs (86%) did not include information to allow for the assessment content validity, while 13 PROMs (14%) address at least one of the COSMIN content validity assessment questions (Table S6). Three PROMs (3%), the Substance Use Recovery Evaluator (SURE), the Substance Use Sleep Scale (SUSS) and the Response to Recovery (R2R) measures received a GRADE of 'moderate' for content validity with the remainder receiving 'very low' [32–34].

PROMs with clinically relevant scores or changes in scores

Five PROMs (6%) had a minimally important change, minimally important difference or clinically relevant benchmark described. The Opioid Craving Visual Analog Scale (OC-VAS) is a single item measuring cravings on a 0 to 100 mm visual analog scale (VAS) where a score of ≤20 mm indicates the stability of low cravings [35]. The Rapid Recovery Progression Measure (Rapid RPM) is a 6-item measure with score cut-offs that predict the probability of reaching clinical cut-off scores for severity for alcohol or drug use and mental health symptoms [36]. The Recovery Strengths Questionnaire (RSQ) is a 15-item measure with score cut-offs indicating early versus late recovery [37]. The Treatment Effectiveness Assessment (TEA) is a 4-item measure with responses on a 1 to 10 scale (score range 4–40) with a minimally important difference of 6.8 [38]. The My Life Tracker provides minimally clinically importance differences in scores for anxiety, depression and post-traumatic stress disorder symptoms, although the scale was not associated with changes in substance use disorder symptoms [39].

Recovery domains

Fifteen (17%) PROMs assessed health-related QOL (*n* = 7, 8%) or generic QOL measures (*n* = 8, 9%). The remaining 75 PROMs (83%) included items covering a variety of the 17 recovery domains. The substance-related recovery domain was the most common (*n* = 46, 51%), followed by psychological health (*n* = 44, 49%), relationships

TABLE 1 Characteristics of patient reported outcome measures (PROMs).

Total	87
No. of items, mean (SD)	17 (11)
Median (range)	16 (1–47)
No. of subscales, mean (SD)	3 (2)
Median (range)	2 (1–8)
Time to complete described, yes, frequency (%)	13 (15)
Response scales,[a] frequency (%)	
Likert	67 (77)
Dichotomous	13 (15)
Numeric	14 (16)
Not specified	6 (7)
Clinically relevant change described, yes, frequency (%)	4 (5)
QOL-specific PROM, yes, frequency (%)	14 (16)
Recovery domains among 73 non-QOL PROMs, frequency (%)	
Substance-related	46 (63)
Psychological health	42 (58)
Relationships	33 (45)
Physical health	32 (44)
Social functioning	21 (29)
Education/training/employment	19 (26)
Use of time	19 (26)
Treatment/support	16 (22)
Pro-social conduct	14 (19)
Identity/self-awareness	13 (18)
Income	11 (15)
Well-being	11 (15)
Goals/aspirations	10 (14)
Housing	7 (9)
Spirituality	5 (7)
Generic QOL	1 (1)
Health-related QOL	1 (1)

PROMs, patient-reported outcome measures; QOL, quality of life.
[a]Multiple selections possible for each PROM.

(*n* = 37, 41%) and physical health (*n* = 32, 36%). The least commonly assessed recovery domains include goals/aspirations (*n* = 10, 11%), housing (*n* = 7, 8%) and spirituality (*n* = 5, 6%). We identified nine PROMs (10%) containing items that did not map to one of the 17 recovery domains. These other domains were most often non-specific assessments of 'consequences' of substance use or references to missing 'obligations'. Figure 2 shows the distribution of how often each recovery domain was included in a PROM by the earliest publication reporting the PROM validation.

Most PROMs (*n* = 67, 74%) assessed multiple recovery domains, with a median of 4 domains (IQR = 1–7) assessed. The maximum number of recovery domains was 10, which occurred in two (2%) PROMs: the 22-item Australian Treatment Outcomes Profile (ATOP) [40–42] and the 20-item Recovery Empowerment Scale (RES) [43]. Of the 90 PROMs identified, 23 (26%) focused on a single recovery domain, with the substance-related domain being the most common (*n* = 16, 18%). The clustering analysis results are presented in Figure 3, which displays clusters of recovery domains, grouping similar domains based on their co-occurrence patterns in the PROMs. The dendrogram demonstrates substance-related items forming a distinct branch, while all other recovery domains cluster on a separate branch. This demonstrates that the substance-related domain is often addressed alone and the proximity to psychological health suggests these domains are often assessed together.

PROMs assessing medication treatment

Eight (9%) PROMs focused on patient response to OUD medications by assessing cravings or withdrawal. Four of these specifically assess cravings or desire to use: the single-item OC-VAS [35]; the Substance Craving Questionnaire NOW (SCQ-NOW) [44], which contains 45 items assessing 5 domains including 'desire to use substance', 'anticipation positive outcomes', 'anticipation relief dysphoria', 'lack of control' and 'intention to use substance;' the Desire for Drug Questionnaire (DDQ) [45–47], a 13-item measure with three factors that assess 'desire and intention', 'negative reinforcement' and 'control'; and the Mannheimer Craving Scale (MaCS) [48], a 12-item measure with two factors that assess the 'obsession' and 'compulsion' for substance use.

The other four PROMs measuring response to medications included the Opiate Dosage Adequacy Scale (ODAS) [49], which is a 10-item measure designed to be administered by clinicians as a semi-structured interview that has four factors: 'heroin craving and use'; 'overmedication', which includes two items assessing the frequency and intensity of overmedication; 'objective opioid withdrawal symptoms'; and 'subjective opioid withdrawal symptoms'. The Scale to Assess Satisfaction with Medications for Addiction Treatment–Buprenorphine-Naloxone for Heroin addiction (SASMAT-BUNHER) [50, 51] is a 17-item measure that has been validated among patients receiving methadone or buprenorphine and assesses the medications' effects on three factors: 'personal functioning and well-being'; 'anti-addictive effect on heroin efficacy'; and 'anti-addictive effect on other substances efficacy'. The Treatment Satisfaction Questionnaire for Medication (TSQM) [52] is a 14-item generic measure of satisfaction with medications, which was adapted and validated to assess satisfaction with methadone as a medication. The TSQM domains assess 'effectiveness', 'side effects', 'convenience' and 'global satisfaction.' The Subjective Opiate Withdrawal Scale (SOWS) [53–55] is a 10- to 16-item measure, depending on the version, which assesses current opioid withdrawal symptoms.

PROMs assessing multiple recovery domains

The upper quartile of the number of recovery domains assessed ranged from 8 to 10 and is considered comprehensive measures. Among the 14 (16%) PROMs deemed comprehensive [32, 34, 37, 38, 40–43,

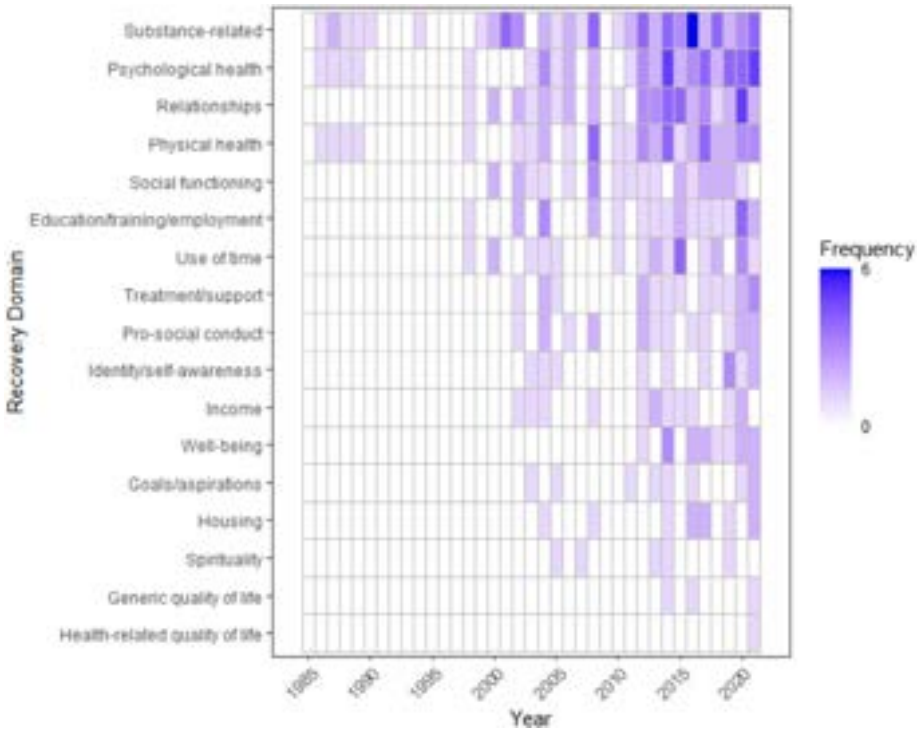

FIGURE 2 Heat map of domain inclusion by year of validation.

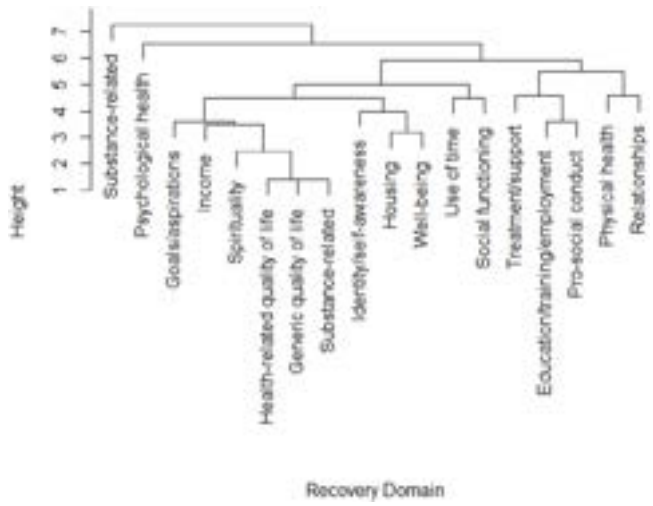

FIGURE 3 Dendrogram illustrating clustering relationship of recovery domains.

56–65], the median number of items was 18 (IQR = 16–22). The PROMs with fewer than 16 items (lowest quartile of length) and, therefore, the most pragmatic for clinical use include the Brief Assessment of Recovery Capital (BARC-10) [61], which contains 10 items the RSQ [37], which contains 15 items, and the TEA [38], which contains 4 items.

Two (2%) comprehensive measures were developed with extensive input from people with lived experience of substance use, had 'moderate' GRADE evidence of content validity, and, therefore, may provide a more patient-centered assessment of recovery. The 21-item SURE [32] assessed five factors described as 'substance use', 'material resources', 'outlook on life', 'self-care' and 'relationships'. The 19-item R2R [34] used existing items pulled from the Patient-Reported Outcomes Measurement Information System [66] with iterative qualitative and survey assessment among clinicians and people with lived experience of substance use to generate a final measure.

QOL measures

The 15 (17%) generic and health-related quality of life measures had a median of 12 items (IQR = 6–32). The PROMs with the lowest quartile of items, and therefore, most pragmatic for routine care, included the 5-item EuroQOL questionnaire-5 dimension 5-Level (EQ-5D-5L) [67–69], which is a generic QOL measure; the single-item EuroQOL Visual Analog Scale (EQ-VAS) [68], which is a generic QOL measure based on a 0 to 100 scale; the 5-item ICEpop Capability (ICECAP) [67], which is a health-related QOL measure specifically assessing the 'capability of individuals to function in terms of stability, attachment, autonomy, achievement, and enjoyment'; and the 6-item Short Form 6D (SF-6D) [68], which is a generic QOL measure developed from the original Short Form 36 (SF-36) [70–72]. The MyLife-Tracker (MLT) is a 5-item generic QOL measure developed specifically for emerging adults that are sensitive to mental health symptom changes, but not substance use symptoms [39].

DISCUSSION

The integration of recovery-focused measurement-based care of OUD is supported by our study, which identified and described

90 PROMs assessing recovery. There was diversity in the number of domains assessed, ranging from single-domain to comprehensive recovery PROMs. Figure 2 shows that PROMs assessing the substance-related recovery domain have been the focus over time while Figure 3 shows that it is the most common domain assessed alongside others. The other domains, as demonstrated in Figure 2, have emerged and possibly reflect an emphasis on the patient-centered treatment and the more contemporary conceptualization of recovery over time. The results, along with the accompanying database, may support efforts to select and implement PROMs that are attentive to patient goals across care settings. As with other health conditions, assessing OUD recovery outcome data would support the identification of patients, clinics or clinicians who would benefit from additional support. However, our analysis revealed a limitation of most PROMs demonstrating very low evidence of content validity. It is possible many PROMs were validated in different populations and re-purposed without seeking content validity. Moreover, few PROMs offered clinically relevant benchmarks or changes in scores. Only five (6%) of the identified PROMs had a clinically relevant change defined and three (3%) received a GRADE rating of 'moderate' for content validity. Without both validated content among patients and interpretable change of scores, the utility of the measures in clinical practice is limited. In practice, this leaves clinicians and patients without clear indicators of treatment progress, potentially undermining efforts to deliver recovery-oriented measurement-based care.

Integrating PROMs into routine OUD care would address some barriers to increasing OUD treatment provision in primary care and outpatient care settings [13]. Objective data obtained from PROMs might ease the cognitive load on clinicians during the visit and aid in obtaining a focused history. In preparing for the unstructured patient interview, PROMs could help the clinician focus their questions to more quickly ascertain a patient's progress or regression in their goals. Administering PROMs before visits would allow more time to be spent on clinical decision-making or delivering behavioral interventions, which improves visit efficiency. Several PROMs were brief (10 items or fewer), which improves their pragmatism for use in primary care settings, where multiple patient concerns often need to be addressed, without limiting the comprehensiveness. For example, the 4-item TEA broadly assesses recovery by capturing multiple domains in each item [14]. However, this brevity comes at a loss of precision since a single question may assess multiple domains. Although we observed a small positive association between the number of items and the number of domains covered, the modest size of this association suggests that longer measures are not necessarily more comprehensive. For systems seeking to integrate PROMs into settings where people who use substances are cared for, it may be best to prioritize addressing the well-documented challenges of implementation and sustainment, which have historically limited the uptake of PROMs in this context [73, 74]. These barriers include burden on staff, lack of resources, and meaningful use of the collected data [75]. The Kaiser Permanente Washington systems overcame many barriers by integrating collection with existing workflows, using a PROM that is broadly applicable to all substance use disorders, and having patients directly report on paper or tablets to encourage accurate reporting [74, 76].

Previous studies describing recovery-focused PROMs differed from our study in several ways. A scoping review to identify PROMs was broadly focused on general domains rather than on specific recovery domains, and they described 12 PROMs, four of which were identified in our study [16]. A review by Stewart *et al.* [17] also identified PROMs with fewer than 25 items and used a broader construct of 'substance-related' outcomes. Our study adds to the literature by specifically assessing recovery based on a broader concept of recovery that, along with existing reviews, suggests the existing corpus of PROMs could be sufficient to inform measurement-based care of OUD.

The OUD care continuum is a useful framework for considering how PROMs could be selected to support each care stage through diagnosis, treatment initiation, retention and recovery [15]. PROMs useful for screening and identifying OUD have been previously described [77]. Our review helps elucidate which PROMs could be implemented after initiating OUD treatment. Selecting a PROM specific to medication initiation, such as cravings, withdrawal and medication satisfaction, could support initial dose titration. After patients receive an effective medication dose, the other domains of recovery become more relevant and comprehensive recovery PROMs could best address a heterogeneous patient population. For example, a primary care clinic may implement the single-item craving VAS in the first 2 weeks of buprenorphine treatment to support dose titration and then transition to the 4-item TEA, which may help clinicians identify domains of a patient's life that need support. Finally, as patients reach a self-defined state of 'recovered' or 'in recovery,' PROMs could transition to a measure identifying when patients are regressing from their goals or at increased risk of returning to drug use, such as brief measures of QOL.

Implementing PROMs across the care continuum first requires further research to describe clinically relevant score changes that can guide measurement-based care. Second, issues related to implementation must be considered, including how to integrate multiple PROMs into routine care and identifying which PROMs are relevant for each treatment stage. Third, many patients with OUD use other substances, have other substance use disorders or have other co-occurring behavioral health conditions. Therefore, PROMs need to be responsive to the impact of these on OUD recovery. Finally, continuous assessment after implementation of PROMs is needed to evaluate their usefulness in comprehensive care settings, like primary care, to ensure that PROMs remain a relevant and sustainable practice.

The results of the review should be interpreted in light of several limitations. Our inclusion and exclusion criteria focused on PROMs validated among patients using opioids in outpatient settings, residential or specialty addiction inpatient programs or community-based samples. This broad scope of settings was intentional to capture as many relevant PROMs as possible. However, residential and outpatient settings differ in important ways, particularly in treatment duration (time-limited vs. ongoing) and treatment goals (early stabilization vs. long-term remission or recovery). As a result, the PROMs

identified, along with their validation characteristics, may not be generalizable across all treatment settings. Further, our decision to deviate from the pre-specified protocol and include studies that described general 'drug' use in the target population could result in the inclusion of PROMs that are not generalizable to patients using opioids. Additionally, non-abstinent recovery and harm-reduction-focused care may not be adequately reflected, particularly among those developed during earlier periods when these concepts were not as accepted. To address this, we highlighted the PROMs with extensive input from people with lived experience. We recommend that future PROMS be co-developed, or current PROMs adapted, in collaboration with patients and people with lived experience, which could allow for more assessment of patient-defined goals regarding opioid use and increase the content validity of the assessment. It is also important to explore whether the relevant recovery domains are related to the specific substance that is being used since certain substances are more stigmatized or have criminal-legal implications than others. Finally, because of the number of included studies, we could not complete the comprehensive risk of bias assessment. Our analysis of content validity suggests low evidence for most PROMs suggests further evaluation of PROM psychometric properties is warranted. Addressing these gaps in future studies will be necessary to advance the clinical utility, validity and patient-centeredness of measurement-based care of OUD.

CONCLUSIONS

We conducted a systematic review of PROMs that assess OUD recovery and that could be used as a part of a measurement-based care approach to OUD care. Ultimately, implementing measurement-based care of OUD through a focus on recovery requires the adoption and implementation of a set of PROMs to individualize care of patients at various stages of care and with different treatment goals. Without robust implementation, adoption and sustainment of PROMs, clinicians will continue to rely on incomplete outcome data, leading to suboptimal outcomes and missed opportunities to meaningfully engage and retain patients in care. Healthcare systems and payors need to support clinicians in implementing PROMs that address specific contexts and ensure OUD treatment, like many other chronic conditions, is guided by objective data.

AUTHOR CONTRIBUTIONS

Jarratt D. Pytell: Conceptualization (lead); data curation (lead); formal analysis (lead); investigation (lead); methodology (lead); project administration (lead); supervision (lead); writing—original draft (lead); writing—review and editing (lead). **Dennis Pales:** Data curation (supporting); investigation (supporting); writing—review and editing (supporting). **Caty Simon:** Data curation (supporting); investigation (supporting); writing—review and editing (equal). **Jarett Beaudoin:** Data curation (supporting); investigation (supporting); writing—review and editing (supporting). **Ahmed M. Y. Osman:** Data curation (supporting); investigation (supporting); writing—review and editing (supporting). **Ellie Svoboda:** Data curation (lead); resources (supporting); software (supporting); writing—review and editing (supporting). **Paul J. Christine:** Formal analysis (equal); investigation (equal); writing—review and editing (equal). **Daniel Matlock:** Conceptualization (equal); writing—review and editing (supporting). **Robert Schwartz:** Conceptualization (equal); methodology (equal); writing—review and editing (equal). **Ingrid A. Binswanger:** Conceptualization (equal); methodology (equal); writing—review and editing (equal).

ACKNOWLEDGEMENTS

We thank Ms. Allison Macht for revisions and comments on the manuscript. Research reported in this publication was supported by the National Institute On Drug Abuse of the National Institutes of Health under Award Number K23DA060358. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

DECLARATION OF INTERESTS

J.D.P. received previous funding from the PhRMA Foundation Faculty Starter grant (2022–2023) for research unrelated to the current work. J.D.P. receives consulting fees from the Center for Personalized Education for Professions for work unrelated to this research. I.A.B. was a Senior Editor for *Addiction* and has recused herself from any discussion or decisions regarding editorial decisions of the manuscript. I.A.B. reports royalties from Wolters Kluwer (UpToDate) for educational content.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CLINICAL TRIAL REGISTRATION

PROSPERO: CRD42023394770.

PREPRINT STATEMENT

This study and its results have not been published nor previously posted on a preprint server.

ORCID

Jarratt D. Pytell https://orcid.org/0000-0002-5394-609X
Paul J. Christine https://orcid.org/0000-0003-1707-0761
Ingrid A. Binswanger https://orcid.org/0000-0001-8862-8078

REFERENCES

1. Lewis CC, Boyd M, Puspitasari A, Navarro E, Howard J, Kassab H, et al. Implementing measurement-based Care in Behavioral Health: a review. JAMA Psychiatry. 2019;76(3):324–35. https://doi.org/10.1001/jamapsychiatry.2018.3329
2. Pytell JD, Rastegar DA. Down the drain: Reconsidering routine urine drug testing during the COVID-19 pandemic. J Subst Abuse Treat. 2021;120:108155. https://doi.org/10.1016/j.jsat.2020.108155
3. Larochelle MR, Bernson D, Land T, Stopka TJ, Wang N, Xuan Z, et al. Medication for opioid use disorder after nonfatal opioid overdose and association with mortality: A cohort study. Ann Intern Med. 2018;169(3):137–45. https://doi.org/10.7326/M17-3107

4. Thakrar AP, Pytell JD, Stoller KB, Walters V, Weiss RD, Chander G. Transitioning off methadone: A qualitative study exploring why patients discontinue methadone treatment for opioid use disorder. J Subst Use AddictTreat. 2023;150:209055. https://doi.org/10.1016/j.josat.2023.209055
5. Kelly JF, Mee-Lee D. Chapter 15 - Quality, Accountability, and Effectiveness in Addiction Treatment: The Measurement-Based Practice Model. In: Danovitch I, Mooney LJ, editorsThe assessment and treatment of addiction Elsevier; 2019 [cited 2022 Dec 2. p. 207–17. https://www.sciencedirect.com/science/article/pii/B9780323548564000158
6. Kelley AT, Incze MA, Baylis JD, Calder SG, Weiner SJ, Zickmund SL, et al. Patient-centered quality measurement for opioid use disorder: development of a taxonomy to address gaps in research and practice. Subst Abus. 2022;43(1):1286–99. https://doi.org/10.1080/08897077.2022.2095082
7. Neale J, Finch E, Marsden J, Mitcheson L, Rose D, Strang J, et al. How should we measure addiction recovery? Analysis of service provider perspectives using online delphi groups. Drugs Educ Prev Policy. 2014;21(4):310–23. https://doi.org/10.3109/09687637.2014.918089
8. Kelly JF, Abry AW, Milligan CM, Bergman BG, Hoeppner BB. On being "in recovery": a national study of prevalence and correlates of adopting or not adopting a recovery identity among individuals resolving drug and alcohol problems. Psychol Addict Behav. 2018;32(6):595–604. https://doi.org/10.1037/adb0000386
9. Substance Abuse and Mental Health Services Administration. SAMHSA's Working Definition of Recovery. 2012 Feb [cited 2024 Sep 25]. Report No.: PEP12-RECDEF. https://store.samhsa.gov/product/samhsas-working-definition-recovery/pep12-recdef
10. What is recovery? A working definition from the Betty ford institute. J Subst Abuse Treat. 2007;33(3):221–8.
11. American Psychiatric Association. Diagnostic and statistical manual of mental disorders Fifth ed. American Psychiatric Association; 2013 [cited 2024 Dec 18. https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596
12. Sanger N, Panesar B, Dennis M, Rosic T, Rodrigues M, Lovell E, et al. The inclusion of patients' reported outcomes to inform treatment effectiveness measures in opioid use disorder. A systematic review. PROM. 2022;13:113–30.
13. Campopiano von Klimo M, Nolan L, Corbin M, Farinelli L, Pytell JD, Simon C, et al. Physician reluctance to intervene in addiction: a systematic review. JAMA Netw Open. 2024;7(7):e2420837.
14. Glasgow RE, Riley WT. Pragmatic measures: What they are and why we need them. Am J Prev Med. 2013;45(2):237–43.
15. Williams AR, Johnson KA, Thomas CP, Reif S, Socías ME, Henry BF, et al. Opioid use disorder Cascade of care framework design: a roadmap. Subst Abus. 2022;43(1):1207–14. https://doi.org/10.1080/08897077.2022.2074604
16. Clarke DE, Ibrahim A, Doty B, Patel S, Gibson D, Pagano A, et al. Addiction medicine practice-based research network (AMNet): Assessment tools and quality measures. SAR. 2021;12:27–39.
17. Stewart RE, Cardamone NC, Schachter A, Becker C, McKay JR, Becker-Haimes EM. A systematic review of brief, freely accessible, and valid self-report measures for substance use disorders and treatment. Drug Alcohol Depend. 2023;243:109729. https://doi.org/10.1016/j.drugalcdep.2022.109729
18. Strada L, Vanderplasschen W, Buchholz A, Schulte B, Muller AE, Verthein U, et al. Measuring quality of life in opioid-dependent people: a systematic review of assessment instruments. Qual Life Res. 2017;26(12):3187–200. https://doi.org/10.1007/s11136-017-1674-6
19. Marsden J, Tai B, Ali R, Hu L, Rush AJ, Volkow N. Measurement-based care using DSM-5 for opioid use disorder: can we make opioid medication treatment more effective? Addiction. 2019;114(8):1346–53. https://doi.org/10.1111/add.14546
20. PRISMA statement. [cited 2024 Aug 28]. PRISMA 2020 checklist. https://www.prisma-statement.org/prisma-2020-checklist
21. Laudet AB. The case for considering quality of life in addiction research and clinical practice. Addict Sci Clin Pract. 2011;6(1):44–55.
22. Rosenberg H, Grant J, Davis AK. Acceptance of non-abstinence as an outcome goal for individuals diagnosed with substance use disorders: a narrative review of published research. J Stud Alcohol Drugs. 2020;81(4):405–15.
23. Hagman BT, Falk D, Litten R, Koob GF. Defining recovery from alcohol use disorder: Development of an NIAAA research definition. AJP. 2022;179(11):807–13. https://doi.org/10.1176/appi.ajp.21090963
24. Stanick CF, Halko HM, Nolen EA, Powell BJ, Dorsey CN, Mettert KD, et al. Pragmatic measures for implementation research: development of the psychometric and pragmatic evidence rating scale (PAPERS). Transl Behav Med. 2021;11(1):11–20. https://doi.org/10.1093/tbm/ibz164
25. Prinsen CAC, Mokkink LB, Bouter LM, Alonso J, Patrick DL, de Vet HCW, et al. COSMIN guideline for systematic reviews of patient-reported outcome measures. Qual Life Res. 2018;27(5):1147–57. https://doi.org/10.1007/s11136-018-1798-3
26. Revicki D, Hays RD, Cella D, Sloan J. Recommended methods for determining responsiveness and minimally important differences for patient-reported outcomes. J Clin Epidemiol. 2008;61(2):102–9. https://doi.org/10.1016/j.jclinepi.2007.03.012
27. Mokkink LB, Elsman EBM, Terwee CB. COSMIN guideline for systematic reviews of patient-reported outcome measures version 2.0. Qual Life Res. 2024;33(11):2929–39. https://doi.org/10.1007/s11136-024-03761-6
28. Terwee CB, Prinsen CAC, Chiarotto A, Westerman MJ, Patrick DL, Alonso J, et al. COSMIN methodology for evaluating the content validity of patient-reported outcome measures: a Delphi study. Qual Life Res. 2018;27(5):1159–70. https://doi.org/10.1007/s11136-018-1829-0
29. Granholm A, Alhazzani W, Møller MH. Use of the GRADE approach in systematic reviews and guidelines. Br J Anaesth. 2019;123(5):554–9. https://doi.org/10.1016/j.bja.2019.08.015
30. Borg I, Groenen PJF. Modern multidimensional scaling: theory and applications. In: Softcover reprint of the hardcover 2nd edition 2nd ed. New York, NY: Springer; 2005. p. 614.
31. R Core Team. R: a language and environment for statistical computing Vienna, Austria R Foundation for Statistical Computing 2021
32. Neale J, Vitoratou S, Finch E, Lennon P, Mitcheson L, Panebianco D, et al. Development and validation of "Sure": a patient reported outcome measure (Prom) for recovery from drug and alcohol dependence. Drug Alcohol Depend. 2016;165:159–67. https://doi.org/10.1016/j.drugalcdep.2016.06.006
33. Neale J, Vitoratou S, Lennon P, Meadows R, Nettleton S, Panebianco D, et al. Development and early validation of a patient-reported outcome measure to assess sleep amongst people experiencing problems with alcohol or other drugs. Sleep. 2018;41(4):1. https://doi.org/10.1093/sleep/zsy013
34. Okrant E, Reif S, Horgan CM. Development of an addiction recovery patient-reported outcome measure: response to addiction recovery (R2AR). Subst Abuse Treat Prev Policy. 2023;18(1):52. https://doi.org/10.1186/s13011-023-00560-z
35. Boyett B, Wiest K, McLeod LD, Nelson LM, Bickel WK, Learned SM, et al. Assessment of craving in opioid use disorder: Psychometric evaluation and predictive validity of the opioid craving VAS. Drug Alcohol Depend. 2021;229(Pt B):109057.
36. Elison S, Dugdale S, Ward J, Davies G. The rapid recovery progression measure: a brief assessment of biopsychosocial

functioning during substance use disorder recovery. Subst Use Misuse. 2017;52(9):1160–9. https://doi.org/10.1080/10826084.2017.1299183
37. Rettie HC, Hogan LM, Cox WM. The recovery strengths questionnaire for alcohol and drug use disorders. Drug Alcohol Rev. 2019;38(2):209–15. https://doi.org/10.1111/dar.12870
38. Ling W, Nadipelli VR, Solem CT, Farabee D, Ronquest NA, Perrochet B, et al. Measuring recovery in opioid use disorder: clinical utility and psychometric properties of the treatment effectiveness assessment. Subst Abuse Rehabil. 2019;10:13–21. https://doi.org/10.2147/SAR.S198361
39. Halladay J, Rahman L, Luvisa M, Mawson M, Massey M, Burns J, et al. Measuring and understanding "quality of life" among emerging adults in a substance use program. Psychol Addict Behav. 2024;38(1):65–78. https://doi.org/10.1037/adb0000926
40. Deacon RM, Mammen K, Bruno R, Mills L, Dunlop A, Holmes J, et al. Assessing the concurrent validity, inter-rater reliability and test-re-test reliability of the Australian treatment outcomes profile (ATOP) in alcohol and opioid treatment populations. Addiction. 2021;116(5):1245–55. https://doi.org/10.1111/add.15331
41. Lintzeris N, Monds LA, Rivas G, Leung S, Withall A, Draper B. The Australian treatment outcomes profile instrument as a clinical tool for older alcohol and other drug clients: A validation study. Drug Alcohol Rev. 2016;35(6):673–7. https://doi.org/10.1111/dar.12393
42. Ryan A, Holmes J, Hunt V, Dunlop A, Mammen K, Holland R, et al. Validation and implementation of the Australian treatment outcomes profile in specialist drug and alcohol settings. Drug Alcohol Rev. 2014;33(1):33–42. https://doi.org/10.1111/dar.12083
43. Peterson NA, Lardier DT, Powell KG, Mankopf E, Rashid M, Morton CM, et al. Psychometric properties of a recovery empowerment scale: testing emotional, cognitive, behavioral, and relational domains. J Community Psychol. 2021;49(7):2874–91. https://doi.org/10.1002/jcop.22592
44. Bonfiglio NS, Renati R, Agus M, Penna MP. Validation of a substance craving questionnaire (SCQ) in Italian population. Addict Behav Rep. 2019;9:100172. https://doi.org/10.1016/j.abrep.2019.100172
45. Franken IH, Hendriks VM, van den Brink W. Initial validation of two opiate craving questionnaires: The obsessive compulsive drug scale and the desires for drug questionnaire. Addict Behav. 2002;27(5):675–85.
46. Hassani-Abharian P, Mokri A, Ganjgahi H, Oghabian MA, Ekhtiari H. Validation for Persian versions of "desire for drug questionnaire" and "obsessive compulsive drug use scale" in heroin dependents. Arch Iran Med. 2016;19(9):659–65.
47. Yen CF, Lin HC, Wang PW, Ko CH, Lee KH, Hsu CY, et al. Heroin craving and its correlations with clinical outcome indicators in people with heroin dependence receiving methadone maintenance treatment. Compr Psychiatry. 2016;65:50–6. https://doi.org/10.1016/j.comppsych.2015.10.001
48. Reichenbach F, Burren Y, Flückiger C, Znoj H, Moggi F. Swiss study to validate the mannheimer craving scale (MaCS). Sucht. 2018;64(1):11–20. https://doi.org/10.1024/0939-5911/a000520
49. González-Saiz F, Lozano Rojas O, Trujols J, Alcaraz S, Siñol N, Pérez de los Cobos J. Evidence of validity and reliability of the opiate dosage adequacy scale (ODAS) in a sample of heroin addicted patients in buprenorphine/naloxone maintenance treatment. Drug Alcohol Depend. 2018;183:127–33. https://doi.org/10.1016/j.drugalcdep.2017.10.035
50. Pérez de los Cobos J, Trujols J, Alcaraz S, Sinol N, Lozano O, Gonzalez-Saiz F, et al. Development and validation of the scale to assess satisfaction with medications for addiction treatment-buprenorphine-naloxone for heroin addiction (SASMAT-BUNHER). Int J Drug Policy. 2018;58:126–34. https://doi.org/10.1016/j.drugpo.2018.06.007
51. Pérez de los Cobos J, Alcaraz S, Sinol N, Gonzalez-Saiz F, Vergara-Moragues E, Trujols J, et al. Towards a common metric for assessing heroin-dependent patient satisfaction with medications: testing methadone and buprenorphine-naloxone. Drug Alcohol Depend. 2020;212:5. https://doi.org/10.1016/j.drugalcdep.2020.108010
52. Trujols J, Iraurgi I, Siñol N, Portella MJ, Pérez V, Pérez De Los Cobos J. Satisfaction with methadone as a medication: Psychometric properties of the Spanish version of the treatment satisfaction questionnaire for medication. J Clin Psychopharmacol. 2012;32(1):69–74. https://doi.org/10.1097/JCP.0b013e3182401e09
53. Dijkstra BA, Krabbe PF, Riezebos TG, van der Staak CP, De Jong CA. Psychometric evaluation of the Dutch version of the subjective opiate withdrawal scale (SOWS). Eur Addict Res. 2007;13(2):81–8.
54. Gossop M. The development of a short opiate withdrawal scale (SOWS). Addict Behav. 1990;15(5):487–90. https://doi.org/10.1016/0306-4603(90)90036-W
55. Handelsman L, Cochrane KJ, Aronson MJ, Ness R, Rubinstein KJ, Kanof PD. Two new rating scales for opiate withdrawal. Am J Drug Alcohol Abuse. 1987;13(3):293–308. https://doi.org/10.3109/00952998709001515
56. Gao H, Liu M, Luo X, Zhang J, Cai T. Application of the Chinese version of the addiction profile index (API) in drug users: An analysis of validity and measurement invariance across genders. Subst Abuse Treat Prev Policy. 2020;15(1):28. https://doi.org/10.1186/s13011-020-00263-9
57. Ogel K, Evren C, Karadag F, Gurol DT. The development, validity, and reliability of the addiction profile index (API). Turk Psikiyatri Derg. 2012;23(4):263–75.
58. Cacciola JS, Alterman AI, DePhilippis D, Drapkin ML, Valadez C, Fala NC, et al. Development and initial evaluation of the brief addiction monitor (BAM). J Subst Abuse Treat. 2013;44(3):256–63. https://doi.org/10.1016/j.jsat.2012.07.013
59. Schumm J, Wong C, Okrant E, Tharp JA, Embree J, Lester N. Factor structure of the brief addiction monitor in a non-veteran substance use disorder outpatient treatment sample. Drug Alcohol Depend Rep. 2022;5:100125.
60. Nelson KG, Young K, Chapman H. Examining the performance of the brief addiction monitor. J Subst Abuse Treat. 2014;46(4):472–81. https://doi.org/10.1016/j.jsat.2013.07.002
61. Vilsaint CL, Kelly JF, Bergman BG, Groshkova T, Best D, White W. Development and validation of a brief assessment of recovery capital (BARC-10) for alcohol and drug use disorder. Drug Alcohol Depend. 2017;177:71–6. https://doi.org/10.1016/j.drugalcdep.2017.03.022
62. Westermeyer J, Yargic I, Thuras P. Michigan assessment-screening test for alcohol and drugs (MAST/AD): evaluation in a clinical sample. Am J Addict. 2004;13(2):151–62. https://doi.org/10.1080/10550490490435948
63. Carey KB, Roberts LJ, Kivlahan DR, Carey MP, Neal DJ. Problems assessment for substance using psychiatric patients: development and initial psychometric evaluation. Drug Alcohol Depend. 2004;75(1):67–77. https://doi.org/10.1016/j.drugalcdep.2004.01.010
64. Blanchard KA, Morgenstern J, Morgan TJ, Lobouvie EW, Bux DA. Assessing consequences of substance use: psychometric properties of the inventory of drug use consequences. Psychol Addict Behav. 2003;17(4):328–31.
65. Kiluk BD, Dreifuss JA, Weiss RD, Morgenstern J, Carroll KM. The short inventory of problems-revised (SIP-R): psychometric properties within a large, diverse sample of substance use disorder treatment seekers. Psychol Addict Behav. 2013;27(1):307–14. https://doi.org/10.1037/a0028445
66. Hilton TF. The promise of PROMIS(®) for addiction. Drug Alcohol Depend. 2011;119(3):229–34.
67. Goranitis I, Coast J, Day E, Copello A, Freemantle N, Seddon J, et al. Measuring health and broader well-being benefits in the context of opiate dependence: the psychometric performance of the ICECAP-A

and the EQ-5D-5L. Value Health. 2016;19(6):820–8. https://doi.org/10.1016/j.jval.2016.04.010
68. Nosyk B, Sun H, Guh DP, Oviedo-Joekes E, Marsh DC, Brissette S, et al. The quality of eight health status measures were compared for chronic opioid dependence. J Clin Epidemiol. 2010;63(10):1132–44. https://doi.org/10.1016/j.jclinepi.2009.12.003
69. van der Zanden BP, Dijkgraaf MG, Blanken P, de Borgie CA, van Ree JM, van den Brink W. Validity of the EQ-5D as a generic health outcome instrument in a heroin-dependent population. Drug Alcohol Depend. 2006;82(2):111–8. https://doi.org/10.1016/j.drugalcdep.2005.08.012
70. Buchholz A, Krol A, Rist F, Nieuwkerk PT, Schippers GM. An assessment of factorial structure and health-related quality of life in problem drug users using the short form 36 health survey. Qual Life Res. 2008;17(7):1021–9. https://doi.org/10.1007/s11136-008-9371-0
71. Yan SY, Lian Z, Sun GK, Bao YP, Ge Y, Liu ZM. Assessment of the Chinese-version SF-36 in the Chinese opiate addicts. Subst Use Misuse. 2011;46(13):1561–8. https://doi.org/10.3109/10826084.2011.589880
72. Zhou K, Zhuang G, Zhang H, Liang P, Yin J, Kou L, et al. Psychometrics of the Short Form 36 Health Survey version 2 (SF-36v2) and the Quality of Life Scale for Drug Addicts (QOL-DAv2.0) in Chinese mainland patients with methadone maintenance treatment. PLoS ONE. 2013;8(11):e79828. https://doi.org/10.1371/journal.pone.0079828
73. McCarty D. Measurement-based care: the implementation challenge. Addiction. 2019;114(8):1354–5. https://doi.org/10.1111/add.14590
74. Bradley KA, Caldeiro RM, Hallgren KA, Kivlahan DR. Making measurement-based care for addictions a reality in primary care. Addiction. 2019;114(8):1355–6. https://doi.org/10.1111/add.14605
75. Migchels C, Zerrouk A, Crunelle CL, Matthys F, Gremeaux L, Fernandez K, et al. Patient reported outcome and experience measures (PROMs and PREMs) in substance use disorder treatment services: A scoping review. Drug Alcohol Depend. 2023;253:111017.
76. Matson TE, Hallgren KA, Lapham GT, Oliver M, Wang X, Williams EC, et al. Psychometric performance of a substance use symptom checklist to help clinicians assess substance use disorder in primary care. JAMA Netw Open. 2023;6(5):e2316283. https://doi.org/10.1001/jamanetworkopen.2023.16283
77. Tang Y, Caswell E, Mohamed R, Wilson N, Osmanovic E, Smith G, et al. A systematic review of validity of US survey measures for assessing substance use and substance use disorders. Syst Rev. 2024;13(1):166. https://doi.org/10.1186/s13643-024-02536-x

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Pytell JD, Pales D, Simon C, Beaudoin J, Osman AMY, Svoboda E, et al. Systematic review of patient-reported outcome measures for opioid use disorder recovery. Addiction. 2025. https://doi.org/10.1111/add.70212