

Operationalising the quality of life construct in studies of alcohol and drug residential rehabilitation programme clients: A systematic review

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Abstract

Introduction and Aims. Quality of life (QOL) is increasingly recognised as an important treatment indicator in the alcohol and other drug (AOD) sector, particularly in treatment modalities providing ‘whole of life programmes’, such as residential rehabilitation. However, it is currently unclear how studies conducted in AOD residential rehabilitation settings have operationally defined and measured QOL. This study therefore aimed to determine current practices in defining and measuring the QOL of residential rehabilitation clients. **Design and Methods.** A systematic review of studies examining the QOL of AOD residential rehabilitation clients was conducted. Potential studies published in English between 1990 and 2018 were identified through a search of electronic databases (e.g. PsycINFO and PubMed), search engines (Google Scholar) and article reference lists. **Results.** The search identified a total of 1267 records, of which 16 met the inclusion criteria. Less than half of the included studies provided an operational definition of QOL. QOL was generally understood to be a subjective, multi-dimensional, client assessment construct. Twelve different instruments were used to assess QOL, of which two enabled clients to identify QOL dimensions important to themselves. **Discussion and Conclusions.** QOL has been inconsistently measured in studies of AOD residential rehabilitation clients. As a result, the comparability and validity of research in this field may be weakened. There is a need to develop a consensual operational definition of QOL, including a core set of domains relevant to and endorsed by residential rehabilitation clients. Appropriate tools to measure client QOL need to be identified and disseminated. [Fischer JA, Roche AM, Kostadinov V. Operationalising the quality of life construct in studies of alcohol and drug residential rehabilitation programme clients: A systematic review. *Drug Alcohol Rev* 2019;38:674–689]

Key words: quality of life, residential treatment, systematic review.

Introduction

Alcohol and other drug (AOD) treatment services utilise a range of measures to assess treatment effectiveness, including AOD use, physical/mental health status and psychosocial factors (e.g. relationships, employment). Recent years have seen increasing calls to also incorporate clients’ subjective insights within outcome assessments, including quality of life (QOL) [1–4]. QOL is particularly relevant in treatment modalities providing whole of life programmes, such as residential rehabilitation, and has potential to be an important tool for informing clinical practice. However, there remains uncertainty regarding how QOL can best be incorporated into outcome assessments. This has resulted in variations in the ways in which different studies understand and measure QOL, hampering its utility as a clinical tool. The current study therefore

aimed to examine how QOL has been defined and measured in studies conducted in AOD residential rehabilitation settings.

Quality of life

The World Health Organization defines QOL as ‘an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns’ [5]. QOL is conceptually different to both health-related QOL with its pathology focus [6–9], and functioning with its emphasis on ability to perform tasks [10].

QOL as a concept is based on three principles. First, QOL assessments are subjective, representing unique self-reflections of personal perspectives and experiences

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(both ‘good’ and ‘bad’) at a given point in time [11–17]. Second, QOL is a multi-dimensional construct comprising a number of different but interrelated domains (e.g. physical and mental health, social relationships and spirituality) [6,13,18–20]. Third, QOL assessments are not static but vary over time as individuals re-evaluate what is important to them at different times and in different contexts (known as ‘response shifts’) [21–24].

QOL has long been accepted as an important client-reported outcome measure which enables clients to directly report how they feel about their ‘goodness of life’ [25], without this assessment needing to be interpreted by a third party [10]. The AOD field is now also embracing the utility of QOL as an outcome measure [1,7,26,27], but there is a dearth of literature examining client QOL within the context of specific treatment settings. Extant systematic reviews of QOL have focused on its relationship with drugs of dependence, namely, alcohol [28,29], opioids [7,8,27] or opioid substitution therapy [30]. No studies were located that systematically reviewed how QOL has been operationalised in AOD residential rehabilitation settings, where clients enter with high AOD dependence and complex needs [31,32] and where the setting itself is the intervention.

AOD residential rehabilitation treatment setting

AOD residential rehabilitation is a model of substance use treatment delivered within the context of 24 h staffed care where the client resides onsite for a significant period of time [33]. AOD residential rehabilitation programmes provide intensive support to clients that cannot realistically be delivered in a community setting [32]. Through structured programmes, delivered within a live-in community of peers, AOD residential rehabilitation assists clients to develop coping and life skills [28,33–37], with treatment typically comprising group work, psychosocial interventions (such as cognitive behaviour therapy or motivational interviewing), vocational activities and living skills [33].

Assessing client QOL is highly concordant with the philosophy and aims of residential rehabilitation, with its emphasis on multiple areas of clients’ lives beyond dichotomous measures of substance use versus no use [1,38]. QOL assessments can provide an indicator of how the treatment setting may influence the ‘goodness of life’ [25] experienced by a client, as well as how aspects of treatment may influence subjective changes in physical and psychological functioning, social

relationships, social activities, employment and living conditions [1,17,39–41].

QOL has potential to be an important clinical tool for informing the nature and structure of care for individual clients [42], guiding efforts to improve service quality and safety [43] and providing evidence of the value of the service to existing and potential funders [44]. Directly asking clients which QOL domains they would prefer their treatment to focus on can additionally improve communication and engagement, and may result in better outcomes, particularly in complex situations [26,45]. Effective measurement and reporting of QOL can therefore ultimately result in higher quality client-centred care better informing programmes about what aspects of life are important to the client [1,17,39,46,47].

Challenges

QOL is a complex concept [21,48] that can be difficult to apply and assess in practice [18,20]. As a subjective assessment, QOL emphasises the point of view of the individual [6,11,49,50]. Indeed, QOL assessments have been characterised as a manifestation of the assessee’s right to self-determination [13,18,20]. Consequently, QOL means different things to different people and groups; clients, clinicians, programme funders and researchers will all have their own understandings of what constitutes ‘QOL’ [20,51,52]. Within a treatment setting, the client’s perspectives is as legitimate as that of the clinician, researcher or policy maker [11]. However, service providers nonetheless need to articulate treatment outcomes for whole client groups in order to ensure that treatment progress can be reliably measured, and that programme content, policy formulation and decision-making are evidence based [53,54].

The subjective and dynamic nature of QOL has implications for the accuracy of representations of client QOL (be they for an individual, a study or a specific programme) as well as for the comparability of study results. Conceptual ambiguity surrounding QOL may ultimately lead to profound differences in clinical practice, research outcomes and allocation of health-care resources [55]. It is important, therefore, to encourage studies to report how QOL has been constructed and operationalised in order to ensure that all readers understand how QOL has been defined and measured.

To facilitate more accurate and appropriate QOL assessment, standards were recently developed by the International Society for Quality of Life Outcomes [56]. These standards call for QOL to be clearly

defined and/or described; assessed with measures that have been validated with the target population; able to identify QOL dimensions important to clients and able to detect change [56]. However, uptake of these standards has been slow in the AOD field, with enduring ambiguity and inconsistency in the reporting of QOL [7,17,27].

Study aims

The purpose of this study was to provide a critical examination of how QOL has been understood and measured in AOD residential rehabilitation research. In order to provide a foundation for understanding how researchers have examined QOL, and subsequently how QOL can best be applied in AOD residential rehabilitation, this study systematically reviewed operational definitions of QOL and the tools used to assess QOL by published studies conducted in this treatment setting.

Methods

Study design and outcomes

A systematic review of studies examining the QOL of AOD residential rehabilitation programme clients was conducted. The outcomes of interest were (i) operational definitions of QOL and (ii) methods of measuring/assessing QOL.

Eligibility criteria

Narrow eligibility criteria were applied in recognition of the imprecision in use of the term 'QOL' [8,57–59] and in order to provide a clearly defined sampling frame. Studies were eligible for inclusion if they were located in a specialised AOD residential rehabilitation treatment programme, QOL was the focal point of the study and they were published in peer-reviewed English language journals between January 1990 and December 2018 (inclusive).

Decisions regarding whether QOL was the focal point of a study were determined by examining the study title, abstract and introduction. Studies that utilised instruments validated with particular population groups (e.g. people with mental health conditions) were included as long as the instrument was specifically designed to measure QOL [e.g. the World Health Organization Quality of Life-Brief (WHOQOL-BREF)]. Studies were excluded if their primary focus was health-related QOL or functioning, or if they

utilised tools specifically designed to measure these constructs. For example, the SF-36 is a recognised measure of health-related QOL [6,7,42,60], whilst the BASIS-32 is an acknowledged measure of functioning [61]; studies using these instruments were therefore excluded from the review.

Search strategy

In June 2017, electronic databases (i.e. CINAHL, Cochrane Library, Drug/Informit, PsycINFO/Medline, PubMed and Scopus) were searched for eligible studies. Depending upon the database, MeSH and other database thesaurus headings, Boolean terms and keywords were combined into search strings. Specific search terms were 'quality of life' AND ('residential rehabilitation' OR 'therapeutic communities') AND ('dependence' OR 'addiction'). Google Scholar was also searched with the same search terms (first 10 pages). Finally, a manual search was conducted of the reference lists of potentially applicable studies. The search was limited to studies that had been evaluated for their scientific and academic merits by others working in the same field (i.e. peer-reviewed studies), as an aim of this study was to better understand what is currently considered acceptable by the field in terms of QOL operationalising and reporting.

The search strategy initially identified 1121 records. Removal of duplicates ($n = 182$) and obviously irrelevant records ($n = 858$) left 81 potential studies which were assessed for eligibility. Of these, 19 appeared to have met the inclusion criteria. However, on closer inspection, five of these studies had not used a measure of QOL (despite claiming to have done so) and were thus excluded, leaving 14 studies (see Figure 1).

A follow-up search, using the same strategy, was conducted in December 2018 to identify any recently published literature. This follow-up search yielded 146 records, of which 136 were excluded, thereby leaving 10 records which were examined for eligibility. Of these, eight were excluded (sample not differentiated $n = 3$; did not examine QOL $n = 3$; already included $n = 2$), leaving two studies. A total of 16 studies were therefore included in the review. All decisions regarding study eligibility and exclusion were confirmed by all authors (see Figure 1).

Analyses

Details from the included studies were extracted and entered into summary tables, including research aims,

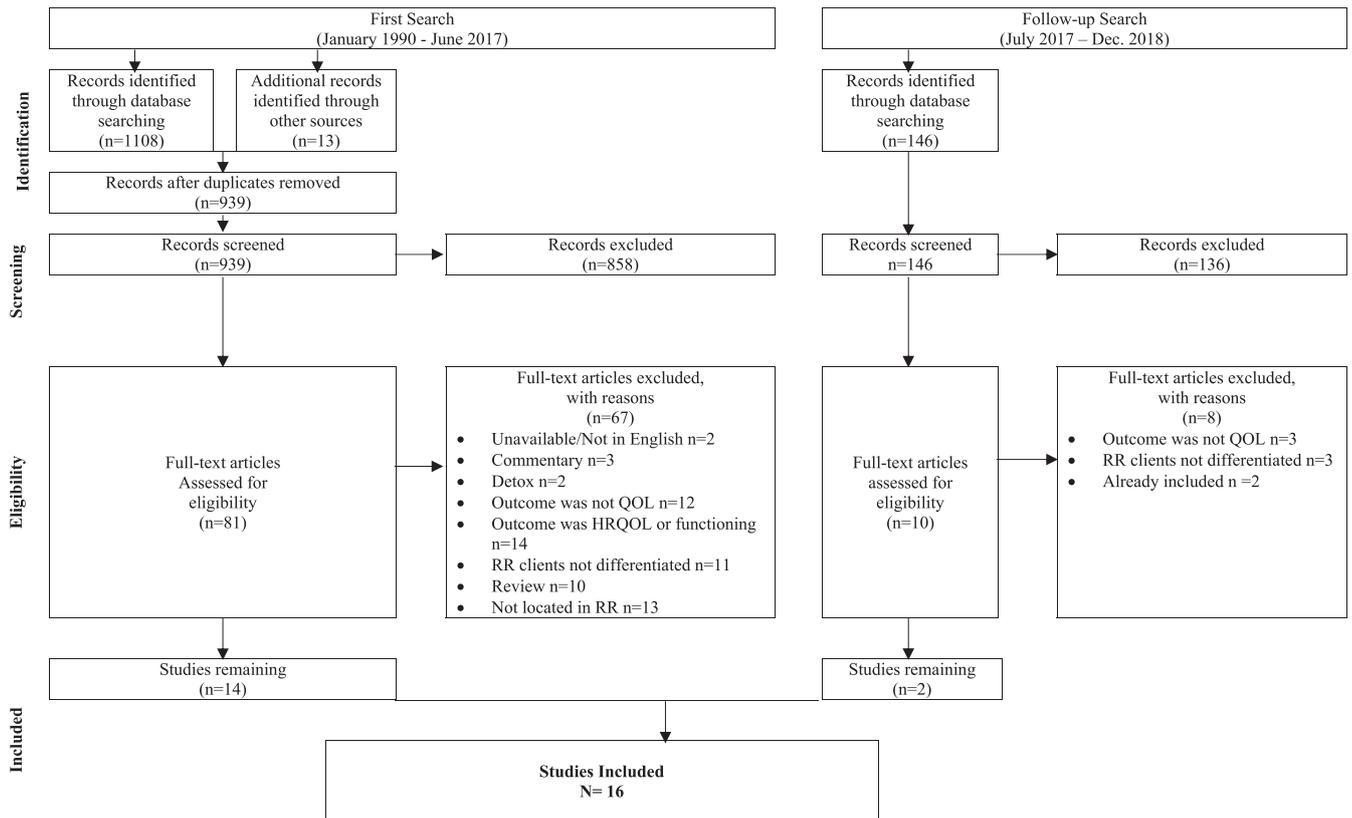


Figure 1. PRISMA flow diagram of included studies. Adapted from Strada et al. [27] and von Elm et al. [62].

study setting, participant characteristics and methodology (Table 1).

Study quality. We were unable to find any tools that specifically assessed the construction and operationalisation of key study concepts. Therefore, we developed a tool based on the STROBE statement (which is in essence a checklist of items which should be reported in studies) [62] and Strada *et al.*'s quality appraisal (which evaluates item content and psychometric properties of the measurement tools utilised [27]).

Our tool assessed the following criteria on a 3-point scale (1 = low quality, 2 = medium quality and 3 = high quality): (i) clear definition of study population; (ii) clear definition/description of residential rehabilitation setting; (iii) clear definition of outcome measure (i.e. QOL); (iv) evidence that the assessment tool is valid and reliable and (v) acknowledgements (including funding and conflicts of interest) and ethics clearances reported. The number of low, medium and high scores received for a given study were summed to give a total numerate score (total score range 5–15), and an overall quality assessment was determined by the total number of low, medium and high scores obtained

(Table 2). Two authors independently conducted the quality assessments, with discrepancies resolved through consensus.

Operational definitions. Studies were examined to ascertain whether they had provided an operational definition of QOL and, if so, whether they adhered to the principles recognised as underpinning the QOL construct (i.e. that QOL is multidimensional, subjective and involves response shifts).

Measuring QOL. The instruments employed by studies to measure QOL were identified. These instruments were examined in two ways. First, in terms of structure that is number of items and administration modality, domains measured and methods of assessment (i.e. whether clients could make a global QOL assessment or preference QOL domains most important to themselves [20,60]). Second, in terms of populations with which the instrument had been validated (initial validation and validation with AOD populations) and reported measures of internal consistency.

Table 1. Overview of the 16 included studies^a

Study and country	Residential rehabilitation description	Study aim	Participants	Methodology
A. Studies describing client QOL on one occasion				
Chenhall and Senior [63], Australia	Indigenous, AOD, 12 week programme	To identify residential rehabilitation clients' QOL priorities	<i>N</i> = 25; demographics: 80% male, mean age: 35 years, all Indigenous identified; DOC: alcohol (88%)	Study design: cross-sectional; sample: convenience; instrument: SEIQoL-DW
Colpaert <i>et al.</i> [64], Belgium	Eleven programmes located in Belgium	To describe residential rehabilitation clients' QOL	<i>N</i> = 274; demographics: 70% male, mean age: 42 years; DOC: alcohol (81%), nicotine (80%)	Study design: cross-sectional; sample: consecutively admitted clients; instrument: WHOQOL-BREF
Fassino <i>et al.</i> [65], Italy	Eight programmes located in Italy	To compare the QOL of residential rehabilitation clients with a personality disorder versus those without a personality disorder versus controls	<i>N</i> = 243; demographics: 83% male, mean age: 31 years; DOC: heroin (100%)	Study design: cross-sectional; sample: convenience; instrument: MQOL
Horton <i>et al.</i> [66], USA	Residential rehabilitation programme but details omitted	To compare the QOL of residential rehabilitation clients who were flight attendants (cases) with other clients (controls)	<i>N</i> = 133; demographics: flight attendants: 39% males, mean age: 42.67 years; 94% employed; controls: 70% male, mean age: 38.35 years, 59% employed; DOC: not reported	Study design: cross-sectional; sample: all flight attendants included and randomly selected (unmatched) controls; instrument: QOL inventory
B. Studies describing changes in client QOL following residential rehabilitation treatment				
Pivetti <i>et al.</i> [67], Italy	A programme based upon a socio-ecological approach	To describe the effect of residential rehabilitation on QOL	<i>N</i> = 20, followed up not reported; demographics: 85% male, mean age 49.6 years; DOC: alcohol (100%)	Study design: prospective cohort; sample: convenience; surveyed at two time points: T1: residential rehabilitation admission, T2: 3–4 months post-discharge; instrument: Satisfaction with Life Domains scale (SLDS) ^b
Trent [68], USA	A residential rehabilitation programme delivered by the US navy	To describe the effect of length of treatment on QOL	<i>N</i> = 2823, 91% followed up; demographics: 95% male, navy personnel; DOC: alcohol (100%)	Study design: A/B experimental; sample: convenience; surveyed at two time points: T1: residential rehabilitation admission, T2: 1 year post-discharge; instrument: Q-LES-Q/Q-LES-Q-SF
C. Studies comparing the QOL of clients in different forms of residential rehabilitation or with clients engaged in other forms of treatment				
Bevanda <i>et al.</i> [69], Bosnia and Herzegovina	One therapeutic community	To compare the QOL of clients engaged in a therapeutic community versus methadone	<i>N</i> = 60; demographics: 100% male, mean age: 31 years; DOC: heroin	Study design: cross-sectional; sample: convenience; instrument: Ferrans and Powers QOL Index

(Continues)

Table 1. (Continued)

Study and country	Residential rehabilitation description	Study aim	Participants	Methodology
McGuire <i>et al.</i> [71], USA	Three residential rehabilitation programmes for homeless military veterans	maintenance versus newly admitted clients To compare the QOL of clients engaged in different types of residential rehabilitation	<i>N</i> = 1003, 72% followed up; demographics: 95% male, mean age: 48 years, homeless, military veterans; DOC: not reported	Study design: prospective cohort; sample: naturalistic; surveyed at two time points: T1: baseline; T2: 12 months after discharge; instrument: Lehman QOL interview
Daley <i>et al.</i> [70], USA	Residential rehabilitation programme but details omitted	To compare the QOL of clients engaged in four different types of residential rehabilitation	<i>N</i> = 439, % followed up not reported; demographics: 100% pregnant females, median age: 27.9 years; DOC: heroin (32%)	Study design: validation study; sample: convenience; surveyed at two time points. T1: 1 week after treatment admission; T2: 6 months; instrument: QOL Utility Index
D. Studies examining the differentiated effect of various residential rehabilitation programmes on client QOL				
Harley <i>et al.</i> [77], Australia	One therapeutic community	To describe client variables associated with treatment completion	<i>N</i> = 193, retrospective follow-up demographics: 55% male, mean age: 37.2 years and females, 37.4 years; DOC: alcohol (males: 49%, females: 53%)	Retrospective quantitative analysis of data collected at treatment entry and exit; instrument: EUROHIS-QOL
Limberger and Andretta [78], Brazil	One therapeutic community	To compare the effect of social skills training (own controls)	<i>N</i> = 9, 56% followed up; demographics: not reported	Study design: quasi-experimental pilot study with pre-/post-test and follow up; instrument: WHOQOL-BREF
Luoma <i>et al.</i> [72], USA	A 28 day programme based on 12-step approach	To compare the effect of a self-stigma workshop versus treatment as usual on QOL	<i>N</i> = 88, 73% followed up; demographics: 47% male, mean age: 36 years; DOC: not reported	Study design: pre-and post; sample: convenience; surveyed at two time points; T1: initial assessment; T2: immediately after workshop; instrument: Flanagan QOL scale
Marceau <i>et al.</i> [73], Australia	One therapeutic community	To compare the effect of cognitive mediation versus treatment as usual on QOL	<i>N</i> = 33, 96% followed up; demographics: 100% female. Cases (<i>n</i> = 16): median 67 days in treatment; controls (<i>n</i> = 17): median 25 days in treatment; DOC: not reported	Study design: controlled sequential group design; sample: naturalistic; surveyed at two time points: T1: pre-intervention; T2: 4 weeks; instrument: Q-LES-Q/Q-LES-Q-SF
Muller and Clausen [74], Norway	Three public and one private post-acute residential programmes	To compare the effect of group exercise on QOL of completers versus noncompleters	<i>N</i> = 35, 69% followed up; demographics: 74% male, mean age: 41 years; DOC: benzodiazepines (41%), alcohol (38%)	Study design: prospective cohort; sample: convenience; surveyed at two time points: T1: pre-intervention; T2: post-intervention;

(Continues)

Table 1. (Continued)

Study and country	Residential rehabilitation description	Study aim	Participants	Methodology
Wood <i>et al.</i> [75], USA	Average length of stay: 70 days. Programme includes individual therapy, group processes, didactic education, family treatment and a 12-step group	To compare the effect of an experiential training programme versus treatment as usual on QOL	$N = 26$, % followed up not reported; demographics: 65% male, age range: 18–62 years; DOC: not reported	instrument: WHOQOL-BREF Study design: prospective cohort; sample: convenience; surveyed at two time points: T1: pre-intervention; T2: post-intervention; instrument: QLQ-F and QLQ-G
Zhu <i>et al.</i> [76], China	Residential rehabilitation programme but details omitted	To compare the effect of Tai Chi versus treatment as usual on QOL	$N = 60$, % followed up not reported; demographics: 100% male. Cases ($n = 30$): mean age: 38 years; controls ($n = 30$): mean age 43 years); DOC: not reported	Study design: quasi-experimental; sample: convenience; surveyed at two time points: T1: pre-intervention; T2: post-intervention; instrument: QOL-DA. V2

^aKey: DSM-IV. ^bOriginal instrument was based upon this measure. %, per cent; DOC, drug of choice; DSM-IV, Diagnostic and Statistical Manual of Mental Disorders Fourth Edition; QLQ-F and QLQ-G, Quality of Life Questionnaire for Family & Group; QOL, quality of life; T1, time one; T2, time two; WHOQOL-BREF, World Health Organization Quality of Life-Brief.

Results

Overview of included studies

The 16 studies included in this systematic review fell into four categories (Table 1). These were studies that: (A) described client QOL on one occasion ($n = 4$) [63–66]; (B) described changes in client QOL as a consequence of residential rehabilitation treatment ($n = 2$) [67,68]; (C) compared the QOL of clients in different forms of residential rehabilitation or with clients engaged in other forms of treatment ($n = 3$) [69–71] and (D) examined the effect of residential rehabilitation programme content on client QOL ($n = 5$) [72–78].

Studies were primarily conducted in the USA ($n = 6$), with others conducted in Australia ($n = 3$), Italy ($n = 2$), Belgium ($n = 1$), Brazil ($n = 1$), Bosnia and Herzegovina ($n = 1$), Norway ($n = 1$) and China ($n = 1$). Samples typically comprised males seeking treatment for alcohol use (Table 1).

Study quality

Study quality was generally assessed as medium ($n = 15$). The highest quality score (14) was achieved by Chenhall and Senior [63]. Overall, most studies

had clearly defined their study population but provided no or limited programme/QOL definitions. Few studies provided evidence that the QOL instruments administered were valid and reliable for the study population, or documented acknowledgements and receiving ethics clearance (Table 2).

Operational definition

Less than half ($n = 7$) of the 16 studies provided an operational definition of QOL. Of the seven studies that did include a definition [63–65,67,69,70,74], almost all ($n = 6$) described QOL as a multi-dimensional concept [63,65,67,69,70]. For example, Daley *et al.* [70] considered QOL to have dimensions concerned with health status, employment status, AOD use, legal problems, family/social conflicts and psychological symptoms. The number of QOL dimensions included ranged from two to seven. Two studies noted that QOL was multidimensional but did not specify the constituent domains [63,67]. It was unclear whether those studies which did not define QOL shared this understanding (but merely chose not to report it) or whether their conceptualisations of QOL differed.

Table 2. Study quality assessments (1, low; 2, medium; 3, high)

Study	Study population clearly defined ^a	Residential rehabilitation clearly defined ^b	Measure of QOL			Overall ^f	
			Clearly defined ^c	Evidence that measure is valid and reliable ^d	Funding, conflicts of interest and ethics reported ^e	Score	Study quality
Bevanda <i>et al.</i> [69]	High	High	High	Low	Medium	12	Medium
Chenhall and Senior [63]	High	High	High	High	Medium	14	High
Colpaert <i>et al.</i> [64]	High	Low	High	High	Medium	12	Medium
Daley <i>et al.</i> [70]	High	Low	High	Not applicable	Medium	9 ^g	Medium
Fassino <i>et al.</i> [65]	High	Low	Medium	Low	Medium	9	Medium
Harley <i>et al.</i> [77]	High	High	Low	Low	High	11	Medium
Horton <i>et al.</i> [66]	High	Low	Low	High	Low	9	Medium
Limberger and Andretta [78]	High	Low	Low	Low	High	9	Medium
Luoma <i>et al.</i> [72]	Medium	Low	Low	Medium	Medium	8	Medium
Marceau <i>et al.</i> [73]	High	Low	Low	Low	Medium	8	Medium
McGuire <i>et al.</i> [71]	High	High	Low	Low	Medium	10	Medium
Muller and Clausen [74]	High	Low	High	Low	High	11	Medium
Pivetti <i>et al.</i> [67]	High	High	High	Low	Low	11	Medium
Trent <i>et al.</i> [68]	High	Medium	Low	Low	Medium	9	Medium
Wood <i>et al.</i> [75]	High	Medium	Low	Medium	Low	9	Medium
Zhu <i>et al.</i> [76]	High	Low	Low	Medium	High	10	Medium

^aStudy population clearly described [yes, (3) high; unclear, (2) medium; no, (1) low]. ^bResidential rehabilitation programme clearly defined [well covered, e.g. detailed description, (3) high; adequate, e.g. briefly described, (2) medium; poor/not reported, e.g. that the study was conducted in a therapeutic community, but no other information provided, (1) low]. ^cMeasure of outcome quality of life (QOL) clearly described [well covered, e.g. detailed description including rationale for inclusion, (3) high; adequate, e.g. definition provided, (2) medium; poor/very poor/not reported, e.g. used as an outcome measure but not defined nor described, (1) low]. ^dMeasure of outcome (QOL) evidence demonstrating assessment measure is valid and reliable [well covered, e.g. study provides a Cronbach α and measurement properties and one for a comparable population, (3) high; adequate, e.g. study provides Cronbach α , (2) medium; poor, e.g. reference only, (1) low; very poor/not reported, e.g. no reference provided, (1) low]. ^eFunding, conflicts of interest and ethics clearances reported [both reported, (3) high; one reported, (2) medium; neither reported, (1) low]. ^fOverall study quality. Sum number of a–e. If mostly lows than overall rating, low; if mostly mediums than overall rating, medium; if mostly highs than overall rating, high. To be assessed as high, requires all criteria to be at least medium. ^gIncludes a not applicable.

The studies providing operational definitions ($n = 7$) also indicated that QOL was a subjective assessment [63–65,67,69,74]. To paraphrase Colpaert *et al.* [64], QOL was understood to comprise individuals' own perspectives on various aspects of their life.

Two studies explicitly noted that clients' QOL assessments could change over time [70,74]. In both cases, scope for variation in QOL was noted to be of particular importance in treatment settings (where change is a critical outcome measure). Daley *et al.* [70], for instance, described the importance of QOL in assessing client functioning pre- and post-treatment in 'areas that are amenable to change through treatment interventions...'. Similarly, Muller and Clausen [74] stated that QOL is both a determinant and an outcome of substance use disorder, therefore having both diagnostic and predictive utility. Additional five studies utilised QOL as a pre-/post-treatment assessment which implies recognition of its capacity to change, although they did not state this explicitly.

QOL measurement

Instrument descriptions. Twelve different instruments had been administered to assess client QOL (Table 3). Three studies had administered the WHOQOL-BREF [5,79] and two studies the QOL Enjoyment and Satisfaction Questionnaire (Q-LES-Q/Q-LES-Q-SF) [80]. The other instruments administered were the EUROHIS-QOL-8 Item [81] (both the WHOQOL-BREF and EUROHIS-QOL are abbreviated versions of the WHOQOL100), Flanagan QOL scale [82–84], the QOL Inventory [85], the QOL Questionnaire [86], the Self-Evaluated Individual QOL-Direct Weight (SEIQoL-DW) [87], Lehman QOL Interview [88,89], the McGill QOL (MQOL) [90,91], the QOL-Drug Abuse Version 2 (QOL-DA.V2) [92], the QOL Index [70] and the Quality of Life Questionnaire for Family & Group (QLQ-F & QLQ-G) [93].

Instruments included in our review most commonly measured the following QOL domains: physical health (e.g. bodily pain), psychological health

Table 3. Instruments used to measure QOL

		Instrument description			Validation and psychometric properties			
Instrument name	No. of items	Instrument structure		Methods of assessment			Included studies	
		Format	Domains/items	Global QOL assessment	Subjects can prioritise domains	Initial		AOD
WHOQOL-BREF [5,79]	26	Survey	General QOL. Physical health, mental health, social relations and environment	Yes	No	Primary care and general population; α domains range from 0.68 (social relationships) to 0.82 (physical health) [59]	Study 1: alcohol dependence, coefficients ranged from 0.78 to 0.89 [102]; study 2: AOD-dependent homeless population, coefficients ranged from 0.73 to 0.69 [103]	Colpaert <i>et al.</i> [64]: not reported in text; Muller and Clausen [74]: not reported in text; Limberger and Andretta [78]: Omega values: T1: 0.84, T2: 0.77, T3: 0.73
EUROHIS-QOL [81]	8	Survey	Consists of eight questions regarding satisfaction with health, energy, money, daily livings, self-satisfaction, relationships living place and overall QOL	Yes	No	Primary care; half with depression, $\alpha = 0.78$ [104]	None found	Harley <i>et al.</i> [77]: not reported in text
Flanagan QOL scale [82–84]	16	Survey	Physical and material well-being, social relations; community and civic activities, personal development and fulfilment	No	No	Chronically ill and general population, α ranged from 0.82 to 0.92 [82]	None found	Luoma <i>et al.</i> [72]: $\alpha = 0.93$
QOL Inventory [85]	17	Survey	Overall QOL. health, self-esteem, goals and values, money, work, play, learning, creativity, helping, love, friends, children, relatives, home,	Yes	Yes	Validated with AOD population	Males with alcohol disorders, α ranged from 0.77 to 0.89 across six samples [105]	Horton [66]: not reported in text

(Continues)

Table 3. (Continued)

		Instrument description			Validation and psychometric properties			
Instrument structure		Methods of assessment						
Instrument name	No. of items	Format	Domains/items	Global QOL assessment	Subjects can prioritise domains	Initial	AOD	Included studies
Satisfaction with Life Domains Scale [106,107]	16	Survey	neighbourhood, community Life in general. Living conditions (including neighbourhood, food availability, clothes), health conditions, relationships, work and social activities, neighbourhood services, financial situation	Yes	No	Psychiatric disorders, $r = 0.64$ with Bradburn Affect Balance scale, $r = 0.29$ with Global Assessment scale [107]	None found	Pivetti <i>et al.</i> [67]: not reported in text
SEIQoL-DW [87]	NA	Interview	Elicits important aspects of life (maximum of five) and self-perceived functioning with five client identified life areas	Yes	Yes	Individually defined QOL in a healthy adult sample, r ranged from 0.73–0.75 in healthy adults [108]	None found	Chenhall and Senior [63]: not reported in text
Lehman Interview [88,89]	17	Interview	General life satisfaction and with living situation, daily activities and functioning, social and familial relationships, finances, work and school, legal and safety issues, health	Yes	No	Severe and persistent mental illnesses, brief version: α ranged from 0.56 to 0.87, full version α ranged from 0.6 to 0.89 [89]	None found	McGuire <i>et al.</i> [71]: not reported in text
Q-LES-Q/Q-LES-Q-SF [80]	16	Survey	Satisfaction overall and with physical health, mood, work, household	Yes	No	Clinical Psychiatric population, α ranged from 0.90 to 0.92 [80]	None found	Trent [68] not reported in text; Marceau <i>et al.</i> [73]: not reported in text

(Continues)

Table 3. (Continued)

Instrument description			Validation and psychometric properties								
Instrument structure		Domains/items	Methods of assessment		Initial	AOD	Included studies				
No. of items	Format		Global QOL assessment	Subjects can prioritise domains							
MQOL [90,91]	17	Survey	activities, social and family relationships, leisure time activities, daily functioning, sexual drive, interest and/or performance, economic status, housing situation and medication use	Psychological symptoms, psychological symptoms, outlook on life	Meaningful existence	Yes	No	Palliative care, α ranged from 0.70 (existence and physical) to 0.80 (overall) [90]	None found	Fassino <i>et al.</i> [65]: not reported in text	
QOL-DA.V2 [109]	40	Survey	Satisfaction with various domains; importance of the domain with that subject	Physiology, society and symptoms	Medical status, employment and support, AOD use, legal, family/social status and psychiatric status	No	No	Validated with AOD population	Methodone patients, α ranged from 0.80 (society) to (0.96) overall [109]	Zhu <i>et al.</i> [76]: α ranged from 0.71 (society) to 0.91 (symptoms)	Bevanda <i>et al.</i> [69]: not reported in text
QOL Index [110]	33	Survey	Medical status, employment and support, AOD use, legal, family/social status and psychiatric status			No	Yes	Graduate students: $\alpha = 0.93$; dialysis patients: $\alpha = 0.90$ [110]	None found	Daley <i>et al.</i> [70]: Addiction Severity Index converted into a QOL Utility Index	

(Continues)

Table 3. (Continued)

Instrument name	Instrument description			Validation and psychometric properties				
	Instrument structure		Domains/items	Methods of assessment		Initial	AOD	Included studies
	No. of items	Format		Global QOL assessment	Subjects can prioritise domains			
QLQ-F and QLQ-G [93]	14	No	Trust, caring, attitude toward change and affiliation (no other details available)	No	No	None found	None found	Wood <i>et al.</i> [75]: not reported in text

(e.g. anxiety and depression), social and familial relationships and activities (e.g. daily and leisure activities). Seven instruments had provision for clients to make a global assessment of their QOL (WHOQOL-BREF, EUROHIS-QOL-8 Items, QOL Inventory, QOL Questionnaire, SEIQoL-DW, Lehman QOL Interview, Q-LES-Q/Q-LES-Q-SF and MQOL). All but one study involved structured questionnaires that comprised between seven and 40 items. The other study used an open-ended interview structure. Across the measurement approaches, Likert-type rating and attitude scales were most frequently used (Table 3).

Two of the 12 instruments (QOL Inventory; SEIQoL-DW) enabled participants to identify and subsequently prioritise aspects of life important to their QOL. Chenhall and Senior [63] administered the SEIQoL-DW which enabled participants to generate lists of important life domains and self-perceived functioning in these areas. Horton *et al.* [66] administered the QOL Inventory, which comprises 16 domains in which participants rank in order of importance (highest to lowest).

Instrument Validation and Psychometric Properties.

None of the included instruments had been validated with residential rehabilitation populations. Three instruments had been validated with AOD populations (QOL Inventory; WHOQOL-BREF; QOL-DA.V2). Another instrument (the QOL Index, a modified version of the Addiction Severity Index) was trialled with pregnant women in residential rehabilitation but had not been validated with this sample. The remaining instruments had been validated with populations who were 'well' (WHOQOL-BREF; SEIQoL-DW; Flanagan QOL scale; QOL Index), had mental disorders (EUROHIS-QOL, Satisfaction with Life Domains scale; Lehman Interview; Q-LES-Q/Q-LES-Q-SF) or had medical conditions (EUROHIS-QOL, Flanagan QOL scale, MQOL).

Discussion

We undertook a systematic review to examine how QOL had been defined and operationalised in studies of AOD residential rehabilitation programme clients. We found a high degree of operational inconsistency in the application of QOL in practice.

Although there was consensus on QOL's underpinning principles (subjectivity, multidimensionality, change over time), less than half of the included studies actually defined QOL. There appeared to be variable acknowledgement of the need to clearly outline one's understanding of QOL in relation to the context in which it was

applied [19,20,57,94–97]. As pointed out by Dijkers [94], ‘many investigators bypass the difficulty in defining what QOL means and go right ahead with developing a measure’ (p. S3). Nevertheless, amongst the studies that did provide an operational definition, there was a relatively cohesive understanding of the construct.

A number of different instruments ($N = 12$) were used to assess client QOL, suggesting that there is currently little agreement on how best to measure the QOL of AOD residential rehabilitation clients. Most instruments did not allow examination of what residential rehabilitation clients themselves understand ‘QOL’ to comprise, or what aspects of life (i.e. domains) were generally important to their QOL [98]. For example, De Maeyer *et al.*’s [98] exploratory study on drug users’ perceptions of QOL found that personal relationships, social inclusion and self-determination were discussed most frequently by participants. By contrast, other studies have identified factors such as improvements in mental health, obtaining employment and re-establishing relationships [28], or engagement in meaningful activities [40] as the most pertinent. This lack of individual customisation reflects a broader problem with the AOD field: Alves *et al.* (2017) reported in a recent review of outcome measures for substance use treatment that few instruments assess what is important to the client.

Consequently, despite a general consensus regarding what the construct of QOL comprised, there remained considerable variation in how it had been measured. At best, this hampers comparability of outcomes between services and studies. At worst, it may result in inappropriate tools being utilised and a concomitant decrease in the reliability and validity of research findings. In order to promote the ongoing and appropriate utilisation of QOL to guide service provision, greater consistency and rigour in the choice of measurement tool is required.

There is a need in the AOD residential rehabilitation sector to formalise an operational definition of QOL and to develop an instrument comprising a core set of items that have been established as relevant to residential rehabilitation clients and validated for use with that population. This finding is consistent with the recent literature on assessing and applying the QOL construct in various areas of the AOD field [7,27,29,30,38]. However, it is acknowledged that the scope for doing so in the immediate future is limited.

In the interim, there are steps that researchers and practitioners can take to help minimise any unintended mismatch [99] between how clients and others define and operationalise QOL. The first step is to identify a possible instrument (e.g. the WHOQOL-BREF) and consider its appropriateness in terms of whether its items reflect client concerns. The WHOQOL-BREF, for example, has been validated with AOD populations

and has the added advantage of providing data comparable to well populations. Secondly, obtain from clients confirmation that the domains assessed by the instrument are relevant to them, that the instrument is easy to complete and that there is a mutual understanding about what the results of an assessment mean.

A limitation of the WHOQOL-BREF is that it assesses QOL within a generic context. To tailor the WHOQOL-BREF to the residential rehabilitation setting, three additional open-ended questions [100] could be asked to determine (i) what QOL means to the client, (ii) what is important and (iii) what is not so important to the client in order to achieve a ‘good life’ [25]. These supplementary narratives [99] of client-generated concerns [101] can help identify what is important to the individual client, and also areas of overall programme content and design which could be enhanced [38,47].

Limitations

This review focused on studies which had been published in the peer-reviewed literature examining AOD residential rehabilitation clients’ QOL. We did not seek AOD residential rehabilitation programmes’ internal documentation regarding their understanding and measurement of QOL. As such, caution is warranted in generalising the present results to all residential rehabilitation contexts.

We limited our study to examining the application of QOL, excluding the related constructs of health-related QOL and functioning. By doing so, we encountered some difficulty in the screening process, with some studies purporting to assess QOL, but in fact assessed HRQOL or functioning. This experience adds weight to this study’s findings of the need for consistency in assessing residential rehabilitation clients’ QOL.

Conclusion

The way in which QOL is understood in studies conducted within residential rehabilitation settings is generally consistent and reflects current consensus on QOL’s three underpinning principles (subjectivity, multidimensionality and changing over time). However, there is little agreement on how to best measure the concept of QOL, potentially decreasing the rigour and applicability of study results by imprecisely and inconsistently measuring client QOL across studies.

There is a need to formalise an operational definition of QOL and to develop instrument(s) appropriate for use with residential rehabilitation clients. Meanwhile, researchers and practitioners are encouraged to

consult with clients regarding their personal QOL priorities and select a valid and reliable instrument that adequately reflects those domains of importance to clients.

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Conflict of Interest

The authors have no conflicts of interest.

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