A Systematic Review of Quality of Life Assessments of Offenders

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Abstract

Strength-based theories of rehabilitation emphasize the importance of opportunities for offenders to achieve "good lives" to not re-offend. The extent to which these groups feel enabled to achieve a good life may be measured through subjective, overall quality of life (QoL). The aim is to systematically review the QoL instruments used among detained offenders and synthesize the factors related to their QoL. A systematic literature review was conducted to retrieve articles that assessed the overall QoL of a sample of detained offenders using a validated instrument. The instruments' specificity, dimensionality, and respondent and administrator burden were assessed, and factors reported as significantly related to QoL were summarized. In total, 41 articles were included in the review: 20 reported on forensic samples and 20 on prisoners, with one study randomly assigning offenders to either forensic treatment or prison. Among the included articles, 12 validated instruments were utilized. Only one instrument, the Forensic Inpatient Quality of Life Questionnaire, was specifically developed for and validated in forensic patients. Detained offending populations reported lower QoL than the general population, and those with untreated mental illness reported the lowest. The most consistent predictors of QoL longitudinally were social factors, while substance use and detention-specific variables were not consistently related. In general, the relationships between poor mental health, loneliness, and poor QoL seen in offenders are also seen among other marginalized populations. To improve the evidence base for QoL assessment in this vulnerable group, current gold standard QoL instruments should be validated in detained populations.

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Background

The Good Lives Model (GLM) and Quality of Life (QoL)

Offending groups have a higher prevalence of mental health problems, substance use, sexual abuse histories, trauma experience, and risk factors for preventable chronic diseases than the general population (Durand et al., 2017; Fazel & Baillargeon, 2010; Fazel, Hayes, Bartellas, Clerici, & Trestman, 2016; Fazel, Yoon, & Hayes, 2017; Massoglia & Pridemore, 2015; Wolff & Shi, 2012). In addition, they often represent socially and economically marginalized groups (DeFina & Hannon, 2009; Foster & Hagan, 2007; Wildeman & Wang, 2017). Strength-based theories of offender rehabilitation such as the GLM acknowledge these disadvantages in their conceptualizations of both offending and rehabilitation. In the GLM, all humans are understood as attempting to achieve primary human goods; Ward, Mann, and Gannon (2007) and Ward and Stewart (2003) suggest these include a healthy life and functioning, knowledge, a sense of ability and mastery, autonomy, freedom from distress, meaningful relationships, community, purpose, happiness, and creativity. If a person lacks prosocial—that is, socially acceptable, safe, and functional—ways of achieving these goods, then antisocial (criminal) attempts to achieve these goods is the recourse (Ward et al., 2007; Ward & Stewart, 2003).

In other words, detention can be a result of lacking the means to attain primary goods. To reduce the risk of re-offending, detention should therefore aim to equip people with the capabilities to achieve self-determined "good lives." The extent to which this occurs is questionable in light of high rates of recidivism across the globe (Fazel & Wolf, 2015). One way to measure the extent to which offending groups feel they have achieved a "good life" may be to measure overall QoL, a construct defined by the World Health Organization (WHO) as "an individuals' 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" (World Health Organization Quality of Life Assessment [WHOQOL] Group, 1996, p. 453). The objectively measurable indicators of poverty, deprivation, and ill health, which are overrepresented among incarcerated populations, inarguably have negative impacts on an individual's material security, social status, and even longevity. QoL is a subjective evaluation by an individual of these indicators and of her or his situation as a whole. As such, it provides information on the effect of a situation such as detention that cannot be measured through traditional, objective indicators. QoL has been found useful in predicting post-treatment outcomes and survival in people with substance use disorders, cancer, and other chronic diseases, even controlling for mortality-related variables (Laudet & Stanick, 2010; Thompson et al., 2014; Tsai et al., 2010).

Improved QoL of detained offending groups is not the goal of all detention systems. In systems influenced by punitive approaches, it is particularly unlikely that QoL would be an outcome of interest: Detention is a sanction and a deterrent for their and others' future crimes. Liebling's seminal research has argued that in British prisons, in which a punitive approach has also been progressively adopted in the past three

decades, prison environments are characterized by a decided disinterest in offending groups' QoL and welfare, operationalized through little or no opportunities for their personal development (Liebling, 2006, 2011, 2017).

On the contrary, a rehabilitative approach, the context for the development of the GLM, differs most centrally from a punitive approach in its intention to "motivat[e], guid[e], and support[] constructive change in whatever characteristics or circumstances engender their criminal behavior or subvert their prosocial behavior" (Lipsey & Cullen, 2007, p. 302). One example of an incarceration system with a rehabilitative approach is that of Norway, and national guidelines clearly state that separation from society is considered sufficient punishment—the only deprived right shall be the loss of liberty. The QoL of detained offenders should improve over detention so that they are situated as best as possible to successfully reintegrate into society, which includes not re-offending (Norwegian Correctional Services, 2017).

Factors Related to QoL Among Offending Groups

Compared with the literature on the QoL of the general population and chronic disease groups, literature on the QoL of detained offending groups is modest, albeit increasing (van Nieuwenhuizen, Schene, & Koeter, 2009). In a large cross-sectional study of prisoners, psychological distress was the strongest correlate of poor QoL (Muller & Bukten, 2019), and this relationship is consistently reported among both the general population (Caron, Cargo, Daniel, & Liu, 2019; Solis & Lotufo-Neto, 2019) and people with chronic diseases (Akhtari-Zavare et al., 2018; Björkman & Hansson, 2002; Fleury et al., 2013; Hansson & Björkman, 2007; Lehto, Ojanen, & Kellokumpu-Lehtinen, 2005; Rabin, Heldt, Hirakata, & Fleck, 2008). Poor QoL has also been reported among populations with similar risk patterns as detained offenders, such as people with histories of childhood maltreatment (Greger, Myhre, Lydersen, & Jozefiak, 2016), personality disorders (Cramer, Torgersen, & Kringlen, 2006; Lindstedt, Soderlund, Stalenheim, & Sjoden, 2005), and substance use disorders (De Maeyer, Vanderplasschen, & Broekaert, 2010; Muller, Skurtveit, & Clausen, 2016; Strada et al., 2017).

Issues in QoL Assessment

Minimum standards for QoL instruments have been recommended by the International Society for Quality of Life Research, after surveying 120 experts in patient-reported outcome measurement (Reeve et al., 2013). In addition to reliability and validity – two common indicators of methodological quality – the conceptual and measurement model should be documented, and the instrument developed with input from the target population. The burden to respondents should be as low as possible, as should the burden to administrators (relating to calculating scores and potentially to administering an interview). Scores should also be interpretable and with a clearly defined minimum important difference. As a subjective construct, QoL should be self-reported, not reported by a proxy such as a carer or a partner (Coen, 2011). By virtue of being

self-reported, QoL should be a respondent-oriented measure, one that privileges the respondent as being the only source of data sought by researchers or practitioners (Laudet, 2011). This may be particularly important for respondents such as detained offenders.

Overall QoL should also be distinguished from health-related QoL (Karimi & Brazier, 2016; Laudet, 2011). Laudet (2011) differentiates the two by describing health-related QoL as a measurement of "an individual's perception of the effects of illness on the physical, mental, and social dimensions of his/her well-being," contra overall QoL, which "encompasses the patient's satisfaction with life in general, not solely in relation to disease-related limitations on functioning" (p. 45). A growing number of health economists and QoL researchers argue that health-related QoL is more a proxy for self-related health, than a global evaluation of well-being as defined by the WHO (Apers, Luyckx, & Moons, 2013; Karimi & Brazier, 2016; Moons, 2004). Overall QoL is therefore the focus of this review.

QoL instruments are traditionally divided into generic (intended to be administrated to both clinical and healthy populations) and disease-specific (intended to be sensitive to groups with various disease states), a nod to QoL's origins as a medical treatment outcome. Disease-specific instruments may better capture factors relevant to the QoL of particular groups compared with generic instruments, with the downside being that disease-specific instrument scores may not be comparable between different groups.

Whether generic or disease-specific, QoL instruments can also be unidimensional or multidimensional. Unidimensional instruments use multiple items to provide a global assessment of an individual's QoL, typically presented with a sum or composite score, which is relatively simple for administrators. Multidimensional instruments contain items that contribute distinctly to two or more domains of QoL.

Aim

The review will answer the following questions: First, how is QoL being assessed among detained offenders? Second, which factors are related to QoL?

"Detained offending groups" is not a homogeneous designation and neither are detention settings. These individuals differ across countries, based on the type of detention settings and the type of offender group they are considered. Secure forensic treatment of mentally ill offending groups in particular varies widely, with one country's forensic patient being another country's average prison detainee. Due to global differences in the placement of mentally ill people into prisons or forensic treatment and the balance of remand, detention, and diversion, both forensic and non-forensic offending groups were of interest in this review. Offending groups who were not detained, such as those placed into outpatient forensic treatment, were excluded.

As the field of offender rehabilitation is increasingly recognizing the importance of well-being both on a human rights basis and for utilitarian reasons, it is important to understand the QoL of offending groups, to evaluate the impact of detention and to identify factors that can support improved QoL (Schel, Bouman, Vorstenbosch, &

Bulten, 2017). Psychometrically, strong instruments are a prerequisite. The overall aim of this review is therefore to synthesize the literature on QoL assessment among detained offending groups, looking both at the instruments used and at significant correlates and predictors of QoL.

Method

PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) guidelines were used to conduct this systematic review (Moher, Liberati, Tetzlaff, & Altman, 2009; Figure 1). Searches were conducted in the databases PubMed/Medline, Cochrane Database of Systematic Reviews, EMBASE, and Web of Science on February 26, 2018. The following search terms were used: (*quality of life OR wellbeing OR well-being*) *AND* (*prison* OR jail OR incarcerat* OR delinquen* OR detain* OR offend* OR forensic*).

Articles were included if they met the following eligibility criteria: (a) Respondents were a detained and offending sample, including individuals in prison, jail, custody, and sentenced to forensic treatment, excluding detained refugees and immigrants, and those sentenced to outpatient forensic treatment; (b) overall QoL, rather than health-related QoL or other types of QoL, was assessed by a validated instrument, including self-report questionnaires and structured interviews but excluding qualitative studies; and (c) QoL was self-reported, rather than by a proxy such as a prison staff or a health care provider. All articles published before the search date of February 26, 2018, were included. Articles were extracted from reviews, but reviews themselves were excluded. Authors were contacted twice if an article could not be accessed or if further information about the sample was needed. The systematic review was registered in PROSPERO as ID: CRD42018088826.

The included articles' study designs and sample characteristics were first described. Then the methodological and conceptual characteristics of the extracted instruments were examined, such as target group/specificity, dimensionality, and burden. The four most commonly used instruments were described in further detail. Finally, the QoL outcomes explored in each study were reported and divided into comparisons of detained offenders' QoL with other groups, cross-sectional correlations of QoL, and longitudinal correlations.

For the sake of simplicity, detained samples mandated to secure mental health treatment after sentencing or contact with the criminal justice system are hereafter referred to as "forensic patients," while offending samples not in secure mental health treatment, including those in jails and prisons, are referred to as "prisoners."

Results

Articles Included

The literature search retrieved 2,457 articles; 1,910 articles were screened after the removal of duplicates, including six subsequently extracted from reviews. Another
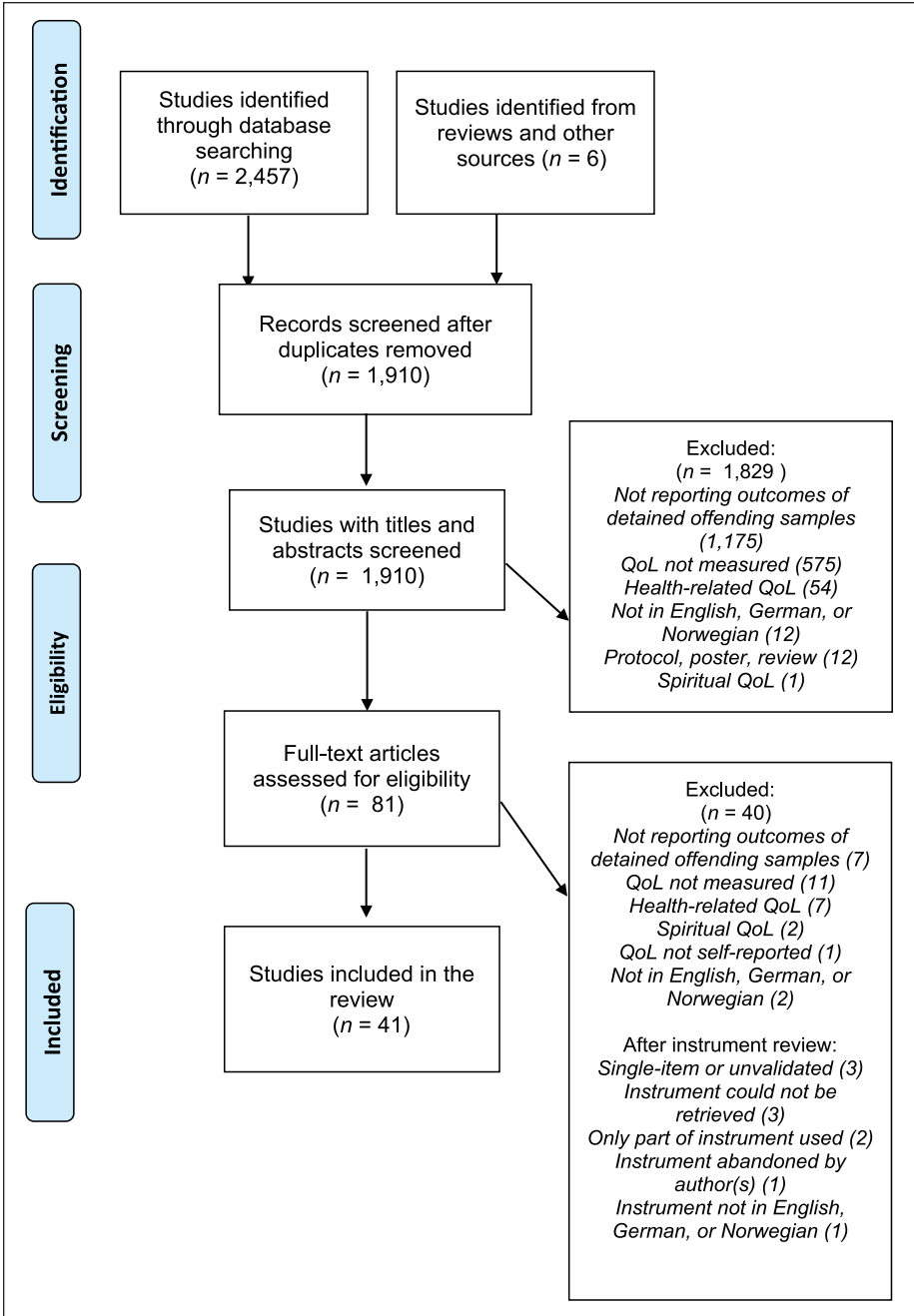
Figure 1. PRISMA flowchart of the systematic review process.
Note. PRISMA = Preferred Reporting Items for Systematic reviews and Meta-Analyses; QoL = quality of life.

1,829 were excluded after title/abstract review; 81 were screened after full-text review, and 40 were excluded (see Appendix 1 for a list, Supplemental Material): seven for not reporting outcomes of the target population; 11 for not measuring QoL; seven for measuring health-related QoL; two for measuring spiritual QoL; one for measuring QoL by a proxy, instead of a self-report; and one for not being in English, German, or Norwegian. Another 10 articles read in full-text were excluded after review of their QoL instrument, either because the instrument was unvalidated or a single-item measure (3), the instrument was irretrievable (3), only part/s of the instrument was/were reported (2), the instrument had been abandoned by the instrument's authors (1), or the instrument was in a language other than English, German, or Norwegian (1); 41 articles were included in the review, published between 1997 and February 2018.

Table 1 displays characteristics of the included studies' designs and samples. Twenty articles reported on forensic samples, 20 on prisoner samples, and one article was a randomized controlled trial (RCT) assigning mentally ill offenders to either forensic treatment or prison (Cosden, Ellens, Schnell, & Yamini-Diouf, 2005). Five articles reported on youth (Barendregt, Van Der Laan, Bongers, & Van Nieuwenhuizen, 2016, 2018; Van Damme, Colins, De Maeyer, Vermeiren, & Vanderplasschen, 2015; Van Damme, Hoeve, et al., 2015; Van Damme, Hoeve, Vermeiren, Vanderplasschen, & Colins, 2016) and two reported on elderly samples (Combalbert et al., 2017; De Smet et al., 2017). Three articles reported on offenders with substance use disorders (Broner, Lattimore, Cowell, & Schlenger, 2004; Metz et al., 2010; Prendergast, McCollister, & Warda, 2017), while among the 21 prisoner articles, two reported on offenders with mental health problems other than substance use disorders (Jacoby & Kozie-Peak, 1997; Zwemstra, Masthoff, Trompenaars, & De Vries, 2009) and two excluded based on this (Carcedo, Perlman, Lopez, & Orgaz, 2012; Carcedo et al., 2011).

Sample sizes ranged from 5 (Ammar, El Zein, & El Jor, 2011) to 995 (Broner et al., 2004), with an average of 147 participants each. In total, 6,165 participants were reported on in these articles. (Three articles reported on subsamples of previously published samples; the unique total of individuals is therefore 5,951.) Twenty-four articles excluded women, four oversampled women (Carcedo et al., 2012; Carcedo et al., 2011; Mooney, Hannon, Barry, Friel, & Kelleher, 2002; Prendergast et al., 2017), and five studies, three of which drew from the same sample, included only women (Gold et al., 2014; Ribeiro, Tully, & Fotiadou, 2015; Van Damme et al., 2016; Van Damme, Colins, et al., 2015; Van Damme, Hoeve, et al., 2015). In total, 5,951 (78.3%) of the reported participants were men.

Mental health among the samples was inconsistently reported by the included studies. Of the articles in which a substance use disorder was not an inclusion/exclusion factor, only 23.7% (nine of 38) reported on substance use disorders in their samples. Similarly, among the articles without mental illness as an inclusion/exclusion factor, not including forensic samples, 21.4% (three of 14) reported on mental health problems. The diagnostic criteria used to assess substance use disorders and other mental health problems varied widely, as displayed in Table 1.

Table 1. Characteristics of the 41 Included Studies.

Author and country	Sample	Study design and comparison group	Factors related to QoL	Tool	Male (%)	Mental health
Adkisson (2012), The United States	100 prisoners	Cross-sectional, compared with undergraduate students	Prisoners had higher QoL in 1 of 16 domains (self-esteem), lower overall QoL, and lower QoL in 10 of 16 domains (goals and values, play, creativity, helping, friends, children, relatives, home, neighborhood, community). No differences in 5 of 16 domains	QOLI	100	MD: 27%[a] SUD: 33%[a]
Ali, Mohamad, Muhammad, Yusoff, and Omar (2016), Malaysia	456 prisoners with drug offenses	Cross-sectional, no comparison group	QoL correlated positively with prison social climate	SWLS	100	MD: NR SUD: NR
Ammar, El Zein, and El Jor (2011), Lebanon	5 prisoners with HIV/AIDS	Cross-sectional, no comparison group	NR	WHOQOL-BREF	100	MD: NR SUD: NR
Barendregt, Van Der Laan, Bongers, and Van Nieuwenhuizen (2016), Holland	176 forensic patients, aged 16-18	Longitudinal, assessed at baseline, 6 months, and 12 months. Patients institutionalized at 12 months compared with those discharged after 6 months	QoL did not improve over time. QoL and self-esteem were consistently correlated	LQoLP	100	MD: 100%[b] SUD: NR
Barendregt, Van Der Laan, Bongers, and Van Nieuwenhuizen (2018), Holland	95 forensic patients, aged 16-18	Longitudinal, assessed at baseline and 12 months, no comparison group	QoL at baseline was not associated with criminal activity at 12 months; 1 of 10 QoL domains (health) was associated with better psychosocial functioning at 12 months	LQoLP	100	MD: 100%[b] SUD: NR
Broner, Lattimore, Cowell, and Schlenger (2004), The United States	995 prisoners/detainees with co-occurring serious mental illness and SUD	Quasi-experimental study conducted in 8 sites comparing detainees diverted from jail due to co-occurring mental/SUD with those eligible for the same program, but not diverted. Assessed 3 and 12 months after assignment	No consistent relationships between diversion and QoL across the 8 sites	LQOLI	72	MD: 100%[b] SUD: 100%[c]
Carcedo et al. (2011), Spain	140 prisoners	Cross-sectional, no comparison group	Prisoners with incarcerated partners had higher QoL in 2 of 4 domains (mental health, environment) compared with both single prisoners and those with unincarcerated partners	WHOQOL-BREF	50	MD: 0%[d] SUD: NR
Carcedo, Perlman, Lopez, and Orgaz (2012), Spain	119 prisoners (subsample; Carcedo et al., 2011)	Cross-sectional, no comparison group	Social loneliness associated with 4 of 4 QoL domains among single prisoners and prisoners with incarcerated partners. Sexual satisfaction associated with QoL among single prisoners only	WHOQOL-BREF	46	MD: 0%[d] SUD: NR
Combalbert et al. (2017), France	138 prisoners over 50 years	Cross-sectional, compared with general population over 50 years	Poorer QoL compared with older adults in general population, in all domains	WHOQOL-BREF	100	MD: NR SUD: NR

Table 1. (continued)

Author and country	Sample	Study design and comparison group	Factors related to QoL	Tool	Male (%)	Mental health
Cosden, Ellens, Schnell, and Yamini-Diouf (2005), The United States	235 offenders with mental illness	RCT randomizing offenders to either 18 months of forensic treatment or sentencing by a judge, assessed every 6 months until 24 months post-baseline	QoL improved for both groups at 6, 12, and 18 months, but forensic patients improved more by 24 months. No dose–response relationship of treatment and QOL	LQOLI	50	MD: 100%[a] SUD: 83%[e]
De Smet et al. (2017), Belgium	93 prisoners over 60 years	Cross-sectional, no comparison group	Psychopathological symptoms were not correlated to QoL, with the exception of suicidal risk, associated with 2 of 4 domains (physical health, psychological health). Age-related physical frailty, health status compared with other prisoners, and satisfaction with activities each correlated to 3 of 4 domains (environment, physical health, psychological health). Social variables were correlated most to psychological health domain	WHOQOL-BREF	94	MD: 46.2%[c] SUD: NR
Draine and Solomon (2000), The United States	250 forensic patients	Cross-sectional, no comparison group	1 of 10 domains (satisfaction with time spent) correlated more to burden of anxiety and depression than sociodemographics, mental health variables, crime variables, and social activities	LQOLI	73	MD: 100%[b] SUD: NR
Ferguson, Conway, Endersby, and Macleod (2009), Australia	14 long-term forensic patients	Pre–post design assessing a 6-week, group-based goal-setting intervention with 2-month follow-up, no comparison group	QoL improved after the intervention and 2 months post-completion, compared with baseline and completion	SWLS	100	MD: 100%[b] SUD: NR
Gerber et al. (2003), Canada	15 forensic patients	Cross-sectional, compared with psychiatric outpatients	Same overall QoL in 8 domains as psychiatric patients. Lower than in community sample (no statistical test conducted)	LQOLI	93	MD: 100%[b] SUD: NR
Gold et al. (2014), Norway	113 prisoners	RCT of music therapy (average of 5 sessions) with follow-ups between 1 and 6 months	Intervention did not improve social relationships domain of QoL (the only domain tested)	Q-LES-Q	100	MD: 29%-45%[f] SUD: NR
Jacoby and Kozie-Peak (1997), The United States	27 prisoners with mental illness	Longitudinal, assessed at discharge and 12 months later, no comparison group	Social support, provided both in and after release from prison, was associated with higher QoL after release from prison	LQOLI	100	MD: 100%[g] SUD: 96%[g]
Jeon, Gang, and Oh (2017), South Korea	38 forensic patients with schizophrenia	RCT of 12-week music therapy	No changes in QoL by group or time	SWN-K	100	MD: 100%[c] SUD: 0%
Lindstedt, Soderlund, Stalenheim, and Sjoden (2005), Sweden	55 forensic patients	Cross-sectional, no comparison group	Psychopathology correlated negatively with QoL	MANSA	100	MD: 100%[b] SUD: NR

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Table 1. (continued)

Author and country	Sample	Study design and comparison group	Factors related to QoL	Tool	Male (%)	Mental health
Lindstedt, Grann, and Soderlund (2011), Sweden	36 forensic patients	Longitudinal, assessed at discharge and 12 months later, no comparison group	3 of 12 domains improved (personal security, family relations, mental health). Those still in treatment had poorer QoL in 1 domain (leisure) than those not in treatment	MANSA	100	MD: 100%[b] SUD: NR
MacInnes et al. (2016), The United Kingdom	107 forensic patients	RCT of a 6-month communication program with 6-month follow-up	QoL improved in intervention group after 6 months with sustained scores at 12 months. No changes in control group	MANSA	85	MD: 100%[b] SUD: NR
Metz et al. (2010), Austria	58 prisoners enrolled in opioid maintenance treatment	Cross-sectional, no comparison group	High overall QoL associated with lower psychological distress, less withdrawal symptoms, fewer years of heroin addiction, HIV-serostatus, and having friends to rely on	LQoLP	100	MD: NR SUD: 100%[h]
Mooney, Hannon, Barry, Friel, and Kelleher (2002), Ireland	177 prisoners	Cross-sectional, compared drug-using female prisoners with drug-using male prisoners, drug-free male prisoners, and women in general population	Group differences in 4 of 4 QoL domains with female prisoners reporting the lowest, but no pairwise comparisons reported	WHOQOL-BREF	67	MD: NR SUD: NR
Murphy and Mullens (2017), The United Kingdom	7 forensic patients with autism	Cross-sectional, compared with published samples of other psychiatric and forensic patients	Higher overall QoL and QoL in 3 of 7 domains (leisure, finance, religion) than other forensic samples and psychiatric samples	LQoLP	100	MD: 100%[b] SUD: NA
O'Flynn, O'Regan, O'Reilly, and Kennedy (2018), Ireland	52 forensic patients with schizophrenia	Cross-sectional, no comparison	High QoL was associated with low ward security, meaningful activities, and therapeutic care	WHOQOL-BREF	100	MD: 100%[b] SUD: NR
Pham and Saloppé (2013), Belgium	96 forensic patients	Cross-sectional, no comparison	Low psychopathy patients lower QoL in 1 of 4 domains (social relationships) compared with moderate and high psychopathology patients	WHOQOL-BREF	100	MD: 100%[b] SUD: 48
Prendergast, McCollister, and Warda (2017), The United States	732 prisoners with SUD	RCT of a brief intervention for SUDs provided at two intensities, 3-month follow-up	No group differences in QoL at follow-up	WHOQOL-BREF	73	MD: NR SUD: 11%–55%[i]
Ribeiro, Tully, and Fotiadou (2015), The United States	45 forensic patients	Cross-sectional, no comparison	NR	WHOQOL-BREF	0	MD: 100%[b] SUD: 56%[j]
Schel, Bouman, Vorstenbosch, and Bulten (2017), Holland	130 long-term forensic patients	Validation study	—	WHOQOL-BREF, FQL-SV	100	MD: 100%[b] SUD: NR
Schel, Bouman, and Bulten (2015), Holland	77 forensic patients	Cross-sectional, no comparison	NR	FQL	100	MD: 100%[c] SUD: NR
Swinton, Oliver, and Carlisle (1999), The United Kingdom	95 forensic patients	Cross-sectional, no comparison	Patients with personality disorders had lower global QoL and lower QoL in 2 of 7 domains (seen doctor, spirituality), and higher global QoL in 1 of 7 domains (leisure) than patients with other mental illnesses	LQoLP	100	MD: 100%[b] SUD: NR

Table 1. (continued)

Author and country	Sample	Study design and comparison group	Factors related to QoL	Tool	Male (%)	Mental health
Trizna and Adamowski (2016), Poland	93 forensic patients	Cross-sectional, no comparison	NR	MANSA	100	MD: 100%[b] SUD: NR
van Damme and Colins, De Maeyer, Vermeiren, and Vanderplasschen (2015), Belgium	121 youth prisoners	Cross-sectional, compared with population norms	Prisoners had lower QoL in 1 of 4 domains (psychological health) than population norms. Various psychiatric disorders and comorbidities, trauma exposure, and low socioeconomic status related to various domains and overall item, with the exception of the social relationships domain, which was not related to socioeconomic status, SUDs, or general comorbidities	WHOQOL-BREF	0	MD: 36%–41%[c] SUD: 63%[c]
van Damme, Hoeve, et al. (2015), Belgium	108 youth prisoners (subsample; van Damme, Hoeve, et al., 2015)	Measured at prison entry and 2-month follow-up, no comparison group	1 of 4 domains (social relationships) at entry predicted poorer readiness to change at entry and follow-up, while 1 of 4 domains (environment) predicted bonding with staff. Otherwise, QoL at entry did not predict any measures of treatment engagement ("treatment" refers to incarceration)	WHOQOL-BREF	0	MD: 40%[c] SUD: 54%[c]
van Damme, Hoeve, Vermeiren, Vanderplasschen, and Colins (2016), Belgium	95 youth prisoners (subsample; van Damme, Hoeve, et al., 2015)	Longitudinal, assessed at prison entry and 6 months after discharge	Poor QoL at entry was correlated to more mental health problems at follow-up, but not to offending at follow-up	WHOQOL-BREF	0	MD: NR SUD: NR
van der Kaap-Deeder et al. (2017), Belgium	156 prisoners	Cross-sectional, no comparison	Higher QoL related to perceiving that one can make decisions in the prison context, an association which was partly explained by higher levels of satisfaction with autonomy	EUROHIS-QOL 8-item index	88.5	MD: NR SUD: NR
van Nieuwenhuizen and Nijman (2009), Belgium	44 forensic patients	cross-sectional, compared with a published sample of psychiatric patients	Lower overall QoL in 2 of 10 domains (living situation, health). Overall, QoL, but not any domains, correlated positively with level of functioning	LQoLP	100	MD: 100%[b] SUD: 76%[a]
Vorstenbosch, Bouman, Braun, and Bulten (2014), Holland	98 long-term forensic patients	Validation study	—	FQL, WHOQOL-BREF	100	MD: 100%[b] SUD: 53%[c]
Walker and Gudjonsson (2000), The United Kingdom	58 forensic patients	Cross-sectional, compared with psychiatric patients	Similar overall QoL, but lower QoL in 4 of 9 domains (living situation, legal/safety, health, social relations)	LQoLP	100	MD: 100%[b] SUD: NR
Williams (2003), The United States	23 prisoners with sex offenses	Cross-sectional, no comparison	NR	LQOLI, QLQ	100	MD: NR SUD: NR

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Table 1. (continued)

Author and country	Sample	Study design and comparison group	Factors related to QoL	Tool	Male (%)	Mental health
Yiengprugsawan, Seubsman, and Sleigh (2012), Thailand	195 prisoners enrolled in distance-learning program	Cross-sectional, compared with monks and general population in the same program	Prisoners had lowest overall QoL in 9 domains, but no statistical tests conducted	PWI	92	MD: NR SUD: NR
Zwemstra, Masthoff, Trompenaars, and De Vries (2009), Holland	71 prisoners with mental illness	Cross-sectional, compared with published samples of prisoners without mental illness, psychiatric patients, and general population	Prisoners with MDs reported (a) lower QoL in 3 of 4 domains (physical health, psychological health, environment) than general population, (b) higher QoL in 3 of 4 domains (physical health, psychological health, social relationships) than psychiatric patients, and (c) lower QoL in 2 of 4 domains (psychological health, social relationships) than prisoners without MDs. Prisons without MDs had higher QoL in 3 of 4 domains (physical health, psychological health, social relationships) than psychiatric patients. Prisoners with SUD (prior to incarceration) had better QoL in 1 of 4 domains (environment) than prisoners without SUD. QoL unrelated to unit type, somatic health, incarceration variables, and unemployment. Having a partner, having contact with family, having housing prospects correlated with higher QoL in 1 of 4 domains (social relationships)	WHOQOL-BREF	100	MD: 100%[c] SUD: 72%[c]

Note. QoL = quality of life; NR = not reported; RCT = randomized controlled trial; MD = mental disorder; SUD = substance use disorder; NA = not available; QOLI = Quality of Life Interview; SWLS = Satisfaction With Life Scale; WHOQOL-BREF = World Health Organization's Quality of Life–Brief Assessment; LQoLP = Lancashire Quality of Life Profile; LQOLI = Lehman Quality of Life Interview; Q-LES-Q = Quality of Life Enjoyment and Satisfaction Questionnaire; SWN-K = Subjective Well-being in Patients With Schizophrenia Under Neuroleptics; MANSA = Manchester Short Assessment of Quality of Life; FQOL = Forensic Inpatient Quality of Life; FQL = Forensic Inpatient Quality of Life questionnaire; FQL-SV = Forensic Inpatient Quality of Life questionnaire short version; European Health Interview Survey–Quality of Life; QLQ = Quality of Life Questionnaire; PWI = Personal Wellbeing Index; APA = American Psychiatric Association.

Mental health indications are as follows:

[a]Diagnosis/criterion not reported.

[b]Entering forensic treatment.

[c]*Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; APA, 1994).

[d]Exclusion factor.

[e]Addiction Severity Index.

[f]State Trait Anxiety Inventory, Hospital Anxiety and Depression Scale.

[g]*Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-III*; APA, 1980).

[h]Enrollment in opioid maintenance treatment.

[i]Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST).

[j]International Classification of Diseases (10th ed.).

Thirteen of the 41 included articles utilized longitudinal designs. Eight of these were experimental or quasi-experimental, while five were observational studies. The study designs did not always correspond to methodology of QoL measurement, in that several longitudinal studies only measured QoL at only one point in time. Among the 29 cross-sectional studies, two were validation studies among forensic patients (Schel et al., 2017; Vorstenbosch, Bouman, Braun, & Bulten, 2014). Seventeen did not utilize a comparison group, while 10 compared with population norms or other groups (Figure 2).

Aim 1: QoL instruments. Table 2 displays characteristics of the 12 extracted instruments measuring overall QoL, as reported by the instruments' authors. There was a significant heterogeneity in the three overarching methodological characteristics explored, summarized below, and four selected instruments are subsequently described more thoroughly.

Specificity. Five instruments were generic and seven were disease-specific, with target groups of people with various mental health problems. Only one instrument was specifically developed for and validated in forensic patients.

Dimensionality. Seven instruments produced an overall QoL score through a single item or a composite score on a variety of different scales; two of these instruments were unidimensional. Nine were multidimensional, measuring four to 17 domains. Domains measured by at least half of the instruments were overall QoL (measured by 10 instruments), physical health (nine instruments), social (nine instruments), environment or living situation (seven instruments), leisure or activities (six instruments), work or education (six instruments), and mental health (five instruments).

Respondent and administrator burden. Most instruments (nine of 12) were self-administered questionnaires, and the remaining three were structured or semi-structured interviews. Eight instruments reported time to completion, ranging from 4 to 45 min, with structured interviews having posing the largest burden.

Selected instruments. The Forensic Inpatient Quality of Life (FQL) questionnaire, and its abbreviated version, FQL-SV, was only used in two studies, yet warrants further description, as it was the only forensic-specific instrument. Development of the FQL began in 2010 in response to the growing proportion of long-term patients in the Netherlands, with 10% of patients remaining in treatment for an average of 9 years (Vorstenbosch et al., 2014). The FQL reports on one of the largest amounts of domains, and was the only instrument that measured the domains of self-determination and nutrition. Pursuant to the large amount of domains, the FQL also includes one of the highest amount of items—118 in total, resulting in a composite 0 to 100 scale—although time to completion is not reported. The abbreviated FQL-SV contained 20 items; time to completion and scoring were not reported.
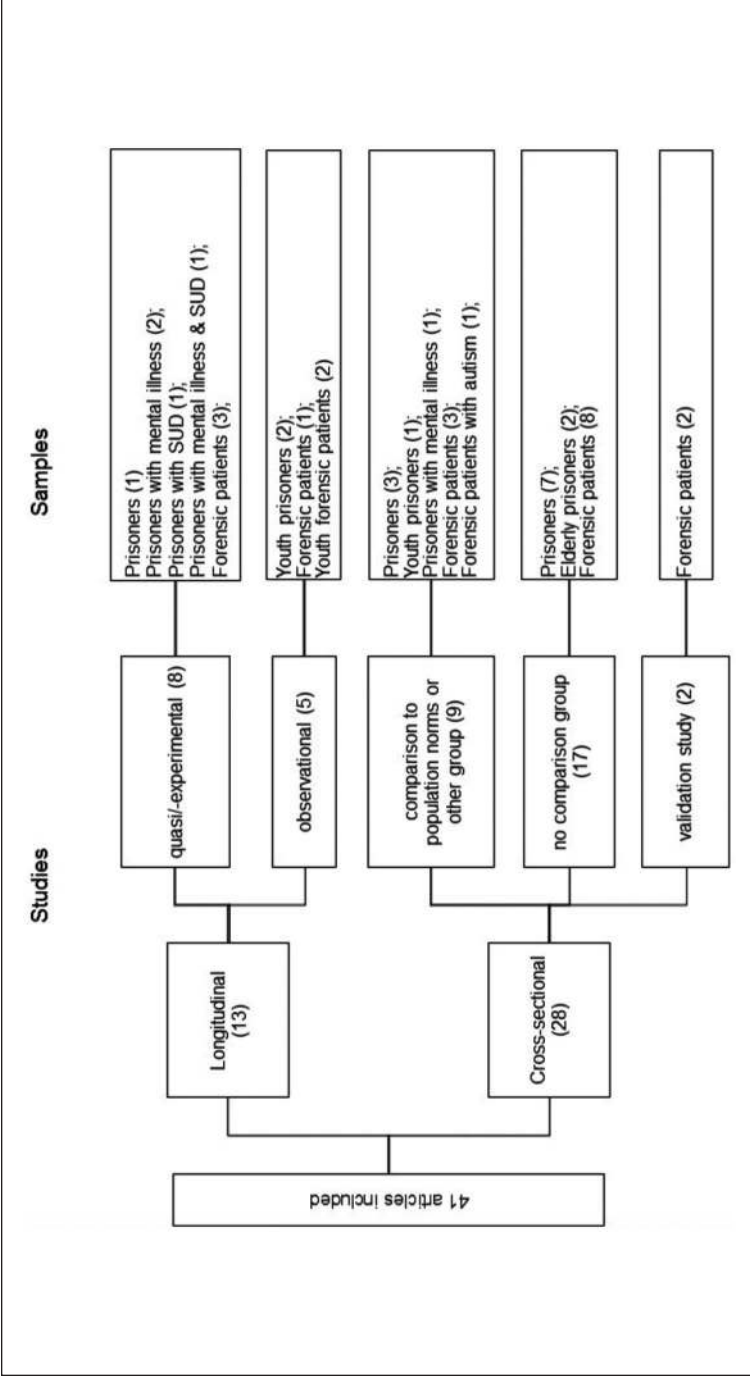
Figure 2. Organization of the study designs and samples among the 41 articles included in this review. Adapted from De Maeyer et al. 2010.
Note. SUD = substance use disorder.

Table 2. QoL Instruments Extracted From the Included Studies.

	Instrument and reference	Target group	Items, domains, and scoring	Administration	Studies
1	WHOQOL-BREF (WHOQOL Group, 1998)	Generic	24 items in 4 domains (physical health, mental health, social relationships, environment), plus overall QoL item and overall health item. Scores on a 4 to 20 or a 1 to 100 scale. Overall items reported on a 1 to 5 scale	Questionnaire, 4.5 to 20 min to complete	15 (Ammar, El Zein, & El Jor, 2011; Carcedo, Perlman, Lopez, & Orgaz, 2012; Carcedo et al., 2011; Combalbert et al., 2017; De Smet et al., 2017; Mooney, Hannon, Barry, Friel, & Kelleher, 2002; O'Flynn, O'Regan, O'Reilly, & G. Kennedy, 2018; Pham & Saloppé, 2013; Prendergast, McCollister, & Warda, 2017; Ribeiro, Tully, & Fotiadou, 2015; Van Damme, Colins, De Maeyer, Vermeiren, & Vanderplasschen, 2015; Van Damme, Hoeve, et al., 2015; Van Damme, Hoeve, Vermeiren, Vanderplasschen, & Colins, 2016; Vorstenbosch, Bouman, Braun, & Bulten, 2014; Zwemstra, Masthoff, Trompenaars, & De Vries, 2009)
2	LQoLP (C. van Nieuwenhuizen, Schene, Koeter, & Huxley, 2001)	People with mental health problems	LQoLP: 105 items in 9 domains (work and education, living situation, leisure time, religion, finances, law and security, family relations, social relations, and health). Overall well-being and life satisfaction scores on a 0 to 100 scale. Domain scores on a 1 to 7 scale.	Structured interview, 45 min to complete	7 (Barendregt, Van Der Laan, Bongers, & Van Nieuwenhuizen, 2016, 2018; Metz et al., 2010; Murphy & Mullens, 2017; Swinton et al., 1999; van Nieuwenhuizen & Nijman, 2009; Walker & Gudjonsson, 2000)

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Table 2. (continued)

	Instrument and reference	Target group	Items, domains, and scoring	Administration	Studies
3	LQOLI (Lehman, 1988)	People with mental health problems	143 items in 8 domains of subjective QoL (living situation, family, social relations, leisure, finances, safety, work, and health). Domain scores on a 1 to 7 scale (also includes 10 domains of "objective QoL")	Structured interview, 45 min to complete	6 (Broner, Lattimore, Cowell, & Schlenger, 2004; Cosden, Ellens, Schnell, & Yamini-Diouf, 2005; Draine & Solomon, 2000; Gerber et al., 2003; Jacoby & Kozie-Peak, 1997; Williams, 2003)
4	MANSA (Priebe, Huxley, Knight, & Evans, 1999)	Generic	12 items in 9 domains (work, finances, friendships, leisure, living situation, safety, physical health, mental health, and life as a whole) and overall item. Domain scores and overall score on a 1 to 7 scale	Structured interview, 15 min to complete	4 (Lindstedt, Grann, & Soderlund, 2011; Lindstedt, Soderlund, Stalenheim, & Sjoden, 2005; MacInnes et al., 2016; Trizna & Adamowski, 2016)
5	FQOL and abbreviated version (FQL-SV) (Schel, Bouman, Vorstenbosch, & Bulten, 2017; Vorstenbosch et al., 2014)	Forensic patients	FQOL: 114 items in 15 domains (activities, leave, residence, nutrition, hygiene, health, sexuality, social relations, other residents, daily staff, affection, autonomy, self-actualization, finances, and religion), plus 3 items about overall QoL and 1 item about acceptance of stay. Domain scores on a 0 to 100 scale FQL-SV: 19 items in the same 15 domains, 1 item about acceptance of stay. Scoring NR	Questionnaire, completion time NR	2 (Schel, Bouman, & Bulten, 2015; Vorstenbosch et al, 2014)

Table 2. (continued)

	Instrument and reference	Target group	Items, domains, and scoring	Administration	Studies
6	SWLS (Diener, Emmons, Larsen, & Griffin, 1985)	Generic	5 items in 1 overall domain. Score from 5 to 35	Questionnaire, completion time NR	2 (Ali, Mohamad, Muhammad, Yusoff, & Omar, 2016; Ferguson, Conway, Endersby, & Macleod, 2009)
7	EUROHIS-QOL 8-item index (Schmidt, Muhlan, & Power, 2006)	Generic	8 items in 1 overall domain. Score on a 1 to 5 scale	Questionnaire, completion time NR	1 (van der Kaap-Deeder et al., 2017)
8	QOLI (Frisch, Cornell, Villanueva, & Retzlaff, 1992)	People with depressive and anxiety disorders	17 items in 17 domains (health, self-regard, philosophy of life, standard of living, work, recreation, learning, creativity, social service, civic action, love relationship, friendships, relationship with children, relationship with relatives, home, neighborhood, and community). Domains scored on a −6 to +6 scale. Overall score on a −6 to +6 scale	Questionnaire, 10 min to complete	1 (Adkisson, 2012)
9	QLQ (Greenley, Greenberg, & Brown, 1997)	People with mental health problems	24 items in 7 domains (living situation, finances, leisure, family, social life, health, and access to medical care). Domain scores from 1 to 7	Questionnaire, 10 to 15 min to complete	1 (Williams, 2003)

(continued)

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Table 2. (continued)

	Instrument and reference	Target group	Items, domains, and scoring	Administration	Studies
10	SWN-K (Naber, 1995)	People with schizophrenia	38 items in 5 domains (emotional regulation, self-control, mental functioning, social integration, and physical functioning). Domain scoring and overall scoring NR	Questionnaire, 15 to 20 min to complete	1 (Jeon, Gang, & Oh, 2017)
11	PWI (Cummins, Eckersley, Pallant, Vugt & Misajon, 2003)	Generic	PWI: 9 items in 9 domains, plus one overall item. Domains and overall score on a 0 to 100 scale	Questionnaire, 4 to 5 min to complete	1 (Yiengprugsawan, Seubsman, & Sleigh, 2012)
12	Q-LES-Q (Endicott, Nee, Harrison, & Blumenthal, 1993)	People with mental health problems	93 items in 7 domains (physical health, subjective feelings, leisure activities, social relationships, general activities, satisfaction with medication, and life satisfaction). Domain scores on a 1 to 5 scale	Questionnaire, completion time NR	1 (Gold et al., 2014)

Note. WHOQOL-BREF = World Health Organization's Quality of Life–Brief Assessment; QOL = quality of life; LQOLI = Lehman Quality of Life Interview; MANSA = Manchester Short Assessment of Quality of life; FQOL = Forensic Inpatient Quality of Life; NR = not reported; SWLS = Satisfaction With Life Scale; EUROHIS-QOL = European Health Interview Survey–Quality of Life; QLQ = Quality of Life Questionnaire; QOLI = Quality of Life Inventory; SWN-K = Subjective Well-being in Patients With Schizophrenia Under Neuroleptics; PWI = Personal Wellbeing Index; Q-LES-Q = Quality of Life Enjoyment and Satisfaction Questionnaire.

The three most frequently used instruments were used by three fourths of the studies (28 of 41). First, the generic WHOQOL-BREF (World Health Organization's Quality of Life–Brief Assessment) was used in 15 studies. This 26-item questionnaire is an abbreviated version of the 100-item WHOQOL-100, and has been validated in clinical and healthy populations around the world, but not among detained offenders (WHOQOL Group, 1998). Respondent burden is modest, with estimates ranging from 4.5 to 20 min. Domain scores can be transformed to a 1 to 100 scale, similar to the FQL, but the overall QoL item is reported on an ordinal 1 to 5 scale.

The second and third most commonly used instruments were closely related structured interviews. The disease-specific Lancashire Quality of Life Profile (LQoLP), intended for people with mental health problems, was used in seven studies. This instrument was later described as influencing the development of the FQL (Schel et al., 2017). The LQoLP was in turn based on, and a somewhat shorter version of, the disease-specific Lehman Quality of Life Interview (LQOLI), which was used in six studies. Both the LQoLP and LQOLI required 45 min to complete and contained 107 and 143 items, respectively. Both produce domain scores on a 1 to 7 scale, allowing for comparison. The LQoLP additionally produces an overall QoL score on a 0 to 100 scale, which can be compared with the WHOQOL-BREF's domain scores and the FQL's composite score.

The remaining seven instruments are described in Table 2. Each was used by one to four studies.

Aim 2: QoL outcomes. Despite validation papers including scoring instructions for QoL instruments, many studies added or removed items and domains, while others changed scoring procedures. For this reason, QoL scores according to instrument characteristics in Table 2 are not reported in Table 1's study characteristics, and factors relating to QoL are instead reported.

Comparison with other groups. Five studies compared samples with population norms. QoL of prisoners was lower in all four domains tested (physical health, psychological health, social relationships, and environment) than population norms in France (Combalbert et al., 2017), in the same four domains in Ireland (Mooney et al., 2002), and again in nine domains and overall QoL in Thailand (Yiengprugsawan, Seubsman, & Sleigh, 2012), although the latter study did not conduct statistical tests. Zwemstra et al. (2009) divided Dutch prisoners into those with and without diagnosed mental illnesses; those without had comparable QoL to the general population, while those with had lower QoL in three of four domains (physical health, psychological health, and environment, but not social relationships). Finally, young female prisoners in Belgium reported similar QoL to population norms in three out of four domains (physical health, social relationships, and environment) and lower QoL in the psychological health domain (Van Damme, Colins, et al., 2015).

Six other studies compared QoL with a type of matched group that was non-detained. The most common comparison was to non-detained samples with mental illness. Forensic patients had mainly similar overall QoL and in all eight domains tested to non-detained psychiatric patients, but lower than a community sample in

Gerber et al. (2003), although no statistical tests were performed. Walker and Gudjonsson's (2000) sample of forensic patients also reported similar overall QoL to psychiatric patients, but lower in four of nine domains—living situation, legal/safety, health, and social relations. In van Nieuwenhuizen and Nijman (2009), forensic patients had poorer QoL than non-detained psychiatric patients and lower scores in only two of 10 domains, living situation and health. Only one study reported that forensic patients had higher QoL than comparison groups: Murphy and Mullens (2017) reported on seven forensic patients with autism spectrum disorder. They had higher overall QoL than other forensic and non-detained psychiatric patients, and higher scores in three of nine domains (leisure, finance, and living situation). In a sample of sex offenders, those incarcerated reported lower overall QoL than those receiving community-based treatment, although no statistical tests were conducted (Williams, 2003).

Zwemstra et al. (2009) reported that both prisoners with and without mental illness had higher QoL in three of four domains than non-detained psychiatric patients (physical health, psychological health, and social relationships). In addition, prisoners without mental illness reported higher QoL in all domains than those with mental illness (physical health, psychological health, social relationships, and environment). Prisoners with substance use disorders prior to incarceration had better QoL in only one domain (environment) than prisoners without substance use disorders.

Adkisson (2012) compared prisoners with a convenience sample of university students, who reported higher overall QoL and higher QoL in 10 of 16 domains, many of which were social-related (helping, friends, children, relatives, home, community, neighborhood, goals and values, play, creativity). Prisoners reported higher QoL than students in the self-esteem domain.

Factors related to QoL when measured cross-sectionally. Twenty-eight of the 41 included studies were cross-sectional. Four longitudinal studies (Barendregt, Van der Laan, Bongers, & Van Nieuwenhuizen, 2018; Prendergast et al., 2017; Van Damme et al., 2016; Van Damme, Hoeve, et al., 2015) only measured QoL once, and their findings are therefore included here. A narrative review of these 33 studies resulted in the following categories of factors: mental health, social, environmental, substance, and other factors.

A range of mental health variables and severity indicators were tested, and, generally, higher severity related to poorer QoL. In non-forensic samples, psychopathology and psychological distress predicted poorer QoL of prisoners in opioid maintenance treatment (Metz et al., 2010) and in youth (Van Damme, Colins, et al., 2015). In the opioid maintenance treatment sample, lower overall QoL was associated with more psychological problems in the past 30 days. In the youth sample, various types of psychopathology were associated with both overall and domain-specific QoL. Lower overall QoL was associated with comorbid trauma, externalizing disorders, and internalizing disorders. Lower scores in the physical health domain were associated with comorbid externalizing and internalizing disorders, as well as disruptive behavior disorders. Lower scores in the psychological health domain were associated

with disruptive behavior disorders and mood disorders, as well as low socioeconomic status. Lower scores in the social relationships domain were associated only with mood disorders, while no psychopathologies were associated with the environment domain scores.

In forensic samples, the relationship between psychopathology and poorer QoL was less clear. In Draine and Solomon's (2000) forensic sample, a regression analysis was built to examine correlates of current anxiety and depression symptom burden. One domain of QoL (satisfaction with time) was more strongly correlated to this burden than other significant variables, including a depression diagnosis, socioeconomic status, age, keeping treatment appointments, and attitudes toward medication. In another sample parsed by psychopathology severity, lower psychopathology correlated with lower QoL in only one domain (social relationships), compared with moderate and high severity (Pham & Saloppé, 2013). van Nieuwenhuizen and Nijman (2009) reported that only overall QoL correlated with better functioning, a measure of rehabilitation of psychiatric patients, with no associations between functioning and any of the 10 domains. In another forensic sample, those with personality disorders reported poorer overall QoL and poorer in two of seven other domains (seen doctor, religious services attendance) than those with other mental illnesses (Swinton, Oliver, & Carlisle, 1999). The personality disordered participants reported higher QoL in the living situation domain. Poor overall and domain-specific QoL (physical health, psychological health, social relationships, and environment) at baseline was related to more mental health problems (symptoms of anger/irritability and depression/anxiety) 6 months after discharge from forensic treatment, although the amount of treatment was not reported (Van Damme et al., 2016). However, when using a multidimensional measure of psychopathology, less than half of the scales were negatively correlated to overall QoL in Lindstedt et al.'s (2005) forensic sample—although after dividing the sample by the presence of psychopathology, overall QoL was lower in those with psychopathology. In an elderly sample of prisoners, a multidimensional psychopathology measure was also unrelated to all four domains of QoL, although the suicidal risk element of the measure was related to two of four QoL domains, physical health and psychological health (De Smet et al., 2017).

Social and interpersonal factors were more consistently related to QoL. In De Smet et al.'s (2017) elderly sample, the psychological and social relationships domains were negatively related to social isolation, less frequent visitors, and a desire for more visitors. Carcedo et al. (2011) found that prisoners with a partner in the same prison reported higher psychological health QoL and environment QoL, compared with both single prisoners and prisoners with unincarcerated partners. In a subsequent study, Carcedo et al. (2012) found that social loneliness is a significant predictor of all the QoL domains for both single prisoners and prisoners with incarcerated partners, and that sexual satisfaction is an important predictor of QoL only for the single inmates. Having friends who could be relied upon was also related to higher QoL in Metz et al.'s (2010) sample. Among a sample of mentally ill prisoners, reporting higher levels of social support while in prison and reporting higher levels after release were both associated with higher QoL after release from prison (Jacoby & Kozie-Peak,

1997). Barendregt et al. (2018) used baseline QoL as an independent variable for subsequent social functioning. Only one of 10 QoL domains at baseline, health, was related to better psychosocial functioning 20 months after admission.

Environmental factors were related to QoL in four of six studies. Higher QoL was related to a better prison social climate, as measured by rights and activities, in a sample of drug-using prisoners (Ali, Mohamad, Muhammad, Yusoff, & Omar, 2016). O'Flynn, O'Regan, O'Reilly, and Kennedy (2018) also found higher QoL in all domains to be related to lower ward security, engagement in meaningful activities, and feeling therapeutically supported. However, QoL did not differ by incarceration setting when comparing prisoners in regular units with prisoners in specialized mental health units (Zwemstra et al., 2009). Trizna and Adamowski (2016) found ward security (high vs. low) to be unrelated to overall QoL. In an elderly sample, feeling physically safe was related to higher environmental QoL and social QoL, and satisfaction with activities in prison was related to both physical health and psychological health QoL (De Smet et al., 2017). In van der Kaap-Deeder et al.'s (2017) prisoner sample, perceiving that one could make decisions in the prison context was related to higher overall QoL.

Somewhat surprisingly, fewer studies examined substance-related correlates. In a sample of prisoners receiving opioid maintenance treatment, fewer years of heroin addiction, less severe withdrawal symptoms, and HIV-negative serostatus were related to higher overall QoL (Metz et al., 2010). The relationship between substance use and QoL was less clear in Mooney et al.'s (2002) study, in which female prisoners, a majority of whom were heroin-using, reported worse QoL in all domains than drug-using male prisoners, drug-free male prisoners, and the general female population. In an RCT of a substance use disorder referral system, QoL was only measured at follow-up, and those who were referred to substance use disorder treatment reported similar QoL in all domains as those who did not receive treatment (Prendergast et al., 2017). Substance use disorders were related to lower physical health and environment QoL domains of young female prisoners, but not psychological health or social relationships QoL (Van Damme, Colins, et al., 2015). In a subsample of the previous study, poor QoL in the social relationships domain at baseline was the only domain related to offending 6 months after discharge from prison (Van Damme et al., 2016).

Some studies measured other factors. In an elderly sample, the level of cognitive impairment was not related to QoL (Combalbert et al., 2017). Van Damme, Hoeve, and colleagues (2015) tested the relationship between four domains of QoL at baseline (physical health, psychological health, social relationships, and environment) and treatment engagement one and two months later, also measured through four dimensions (positive relationships/bonds with staff, therapeutic engagement, readiness to change, and collaboration on goals and tasks). Environment QoL was related to positive relationships/bonds with staff at both subsequent points in time. Relationships with staff included agreement with items such as "I trust the staff here" and "Staff is generally concerned with my welfare." Social relationships QoL was related to readiness to change both 1 and 2 months later; the readiness to change dimension was measured

through items such as "Maybe this place will be able to help me" and "I guess I have faults, but there's nothing I really need to change." Van Damme, Colins, and colleagues (2015) also reported that exposure to trauma and low socioeconomic status were related to poorer QoL in all four domains in a youth sample. In Barendregt et al.'s (2016) longitudinal study of youth forensic patients, QoL and self-esteem were correlated over three points in time.

Factors related to QoL measured longitudinally. Most studies measuring the effect of forensic treatment on QoL used only a pre–post design and tended to report no change. Three studies reported no changes in the majority of QoL domains after 6 to 37 months of forensic treatment (Barendregt, Van Der Laan, Bongers, & Van Nieuwenhuizen, 2016; Jeon, Gang, & Oh, 2017; Lindstedt, Grann, & Soderlund, 2011). Only one study, Lindstedt et al., managed to collect data from some participants (one third) after released from forensic treatment. Barendregt et al. (2016) found no improvements in QoL among those receiving 6 or 12 months of forensic treatment.

Two studies compared incarcerating mentally ill offenders with another option. In an RCT that randomized mentally ill offenders to forensic treatment or incarceration, only the group receiving forensic treatment improved global QoL over time, and this was seen for all amounts of treatment (Cosden et al., 2005). Broner et al. (2004) conducted a multi-site quasi-experimental study comparing offenders with co-occurring disorders who were either incarcerated or diverted from jail. Diversion referred to a range of different activities across the eight sites, from a referral to community services or being taken to the emergency department instead of jail, and integrated substance use and mental health services. Regression coefficients between treatment assignment and overall QoL and three QoL domain scores were reported. In pooled estimates, diversion was related to higher QoL in only the living situation domain, 3 and 12 months after intake.

Additional interventions were also explored. In a pre–post study without a comparison group, a 2-month goal-setting program among forensic patients improved QoL (Ferguson, Conway, Endersby, & Macleod, 2009). Among the experimental and quasi-experimental studies, music therapy programs did not improve any domains of QoL among forensic patients with schizophrenia (Jeon et al., 2017), or the social relationships domain of QoL among prisoners (Gold et al., 2014), although the latter study's authors note that the study was underpowered. A communication program for forensic patients improved overall QoL, and improvements lasted up to 12 months post-intervention (MacInnes et al., 2016).

Other. Three articles merely described QoL items or domain scores, without making comparisons, reporting changes, or examining correlates: a study describing five prisoners with HIV/AIDS (Ammar et al., 2011), a study of forensic patients (Ribeiro et al., 2015), and a study examining congruence between patient-reported QoL and nurse estimations (Schel, Bouman, & Bulten, 2015).

Discussion

Ward and Stewart (2003) explicitly tied QoL to offender rehabilitation and have developed the GLM of rehabilitation that is "concerned with the *enhancement* of offenders' capabilities in order to improve the quality of their life, and by doing so, reduce their chances of committing further crimes against the community when they are released from prison" (p. 353; italics in the original). QoL has been increasingly measured in the forensic treatment of mentally ill offenders, but no overview to date has been available of its usage within other detained offender samples or of assessment instruments. This review aimed to systematically review validated instruments that have assessed the QoL of detained offending populations and the factors that have been reported as significantly related to their QoL. Forty-one articles that used 12 QoL instruments were included.

QoL of Offending Groups

Detained offenders generally reported poorer overall QoL than population norms, and poorer QoL in domains related to environment or living situations compared with non-detained samples. Detained offenders with mental health problems, whether in forensic treatment or in prison, most often reported similar QoL as other non-detained, mentally ill samples. It is well established that mental health problems predict impaired QoL, and treatment seeks to correct such impairments (De Maeyer et al., 2010; Fleury et al., 2013; Heider et al., 2007; Pan et al., 2012). Detained offenders with untreated mental illness may therefore suffer a double burden of being detained as well as mentally ill.

Forensic treatment most often had no effect on QoL in studies with pre–post designs. A small amount of research has pointed to the positive effects of non-forensic compulsory mental health treatment on QoL (Pasareanu, Opsal, Vederhus, Kristensen, & Clausen, 2015; Swanson, Swartz, Elbogen, Wagner, & Burns, 2003). While forensic treatment and compulsory mental health treatment are both involuntary, compulsory mental health treatment is the response to an individual posing an immediate danger to themselves or their surroundings, not in response to an offense. The difference in effect on QoL may therefore be the (perceived) punitive nature of forensic treatment. Detention itself can be an experience of marginalization, and perhaps potential QoL gains are offset if forensic treatment is experienced as directly punitive or as part of a punitive system, or in other ways associated with a detainee's experience of being identified as criminal. This hypothesis should be explored in future research, for example, by examining differences between how patients in compulsory mental health treatment and forensic treatment perceive the nature of their treatment.

In support of this hypothesis, gains in QoL were common in two studies with forensic patients that examined not forensic treatment itself, but interventions implemented both adjunct to and after forensic treatment: a goal-setting intervention (Ferguson et al., 2009) and a communication program (MacInnes et al., 2016). These interventions may not

have been perceived as punishment-related. This finding supports offering forensic patients a variety of adjunct, voluntary treatments to improve their QoL—although music therapy may not be efficacious (Gold et al., 2014; Jeon et al., 2017).

The two studies reporting on interventions among mentally ill offenders suggested that detention outside of a forensic setting is not conducive to improved QoL. Those randomized to forensic treatment improved their QoL, while those randomized to incarceration did not improve their QoL (Cosden et al., 2005). Similarly, in Broner et al. (2004), improved QoL over time was only seen in those diverted from incarceration (including to mental health treatment and also simple referrals), not those incarcerated. If offenders are leaving incarceration without improved QoL, it is unlikely that incarceration succeeded in equipping them with any additional tools to lead a good life.

The relationship between mental health variables and QoL was explored in surprisingly few prisoner samples, belying the large burden of mental health problems experienced by this population (Fazel & Baillargeon, 2010), as well as its importance to QoL (Björkman & Hansson, 2002; Fleury et al., 2013; Hansson & Björkman, 2007; Ritsner, Arbitman, Lisker, & Ponizovsky, 2012) and to re-offending (Morgan et al., 2012). If mental illness is not addressed, QoL will likely not improve with time. Providing mental health treatment within prisons has already been identified as a best practice by the WHO, European Parliament, and the National Institute for Health and Care Excellence, and an even earlier point of intervention would be to diagnose and divert mentally ill offenders into forensic treatment (National Institute for Health and Care Excellence, 2017; Raffaelli, 2017; WHO, 2007). Addressing offenders' mental health problems could contribute to improved QoL. If this review's studies are any indication, such problems are not often assessed.

The consistent correlation between offenders' loneliness and low social support to low QoL contributes to a growing body of evidence of such relationships among other populations (Best et al., 2013; Björkman & Hansson, 2002; Fleury et al., 2013; Hansson & Björkman, 2007; Muller, Skurtveit, & Clausen, 2017; Netuveli, Wiggins, Hildon, Montgomery, & Blane, 2006; Quaresma, Palmeira, Martins, Minderico, & Sardinha, 2014; Rao et al., 2012). Social network interventions aimed at accessing and enhancing social support available to offenders may have the additional and reinforcing benefits of reduced risk behavior and substance use post-release (Litt & Mallon, 2003). While detainees may have similar social needs as other populations, they likely have far greater burden of barriers to building and maintaining relationships and support. In one meta-synthesis, youth detainees reported that social support after release often entailed complicated baggage: support from friends often included encouragement to re-offend, and support from families could also be accompanied by destructive interpersonal dynamics (Martinez & Abrams, 2013). Adult ex-offenders have also reported having lasting needs for social support, which offender reentry programs may not sufficiently address (Denney, Tewksbury, & Jones, 2014).

QoL Instruments and Methodological Challenges

While it is important for studies to be able to be flexible in their selection of QoL instruments, the heterogeneity of instruments—and the ease with which items and domains within them were modified or excluded—precluded comparing current QoL across samples. Modification may reflect dissatisfaction among researchers and instrument administrators with the current gold standards, perhaps because their items do not account for the detained environment of both forensic treatment and incarceration. The validation of the forensic-targeted Forensic Quality of Life Questionnaire among non-forensic offenders, to explore whether it could be detention-specific as well, is an important next step. Validation of the WHOQOL-BREF among offenders should also occur, to ensure its validity and relevance.

Limitations

The methodological heterogeneity of instruments, study designs, and analytic strategies have important repercussions on the conclusions that this review can make. Most longitudinal studies did not control for within-person variation, while others measured QoL only once. It was also impossible to tease apart the effect of mental health problems on QoL, which is one of the only consistent predictors of QoL. Without controlling for the covariance of these problems, the low QoL reported by nearly all studies, particularly involving prisoners, could be a spurious finding that reflects, instead, psychopathology (Katsching, 2006). Other limitations to this review include potential biases introduced in the search strategy and selection process. While studies in English, German, and Norwegian were included, QoL instruments used locally in any other language and without translation were not captured, and four articles were excluded because they or their instrument were not retrievable or in one of these three languages. (It is reassuring, however, that the most commonly used QoL instruments were represented). An additional three studies were excluded because they used unvalidated instruments, and subsequent reviews will benefit from these instruments' future validation.

Conclusion and Future Research

This comprehensive search resulted in 41 articles that reported on small descriptive studies to multi-site quasi-experiments, conducted in Europe, North America, Asia, the Middle East, and Australia. In general, offenders' QoL was lower than the general population and non-detained mentally ill populations, particularly in environment domain. Mental health problems and indicators of low social support were related to poorer QoL in many studies, more so than substance use. While the amount of evidence was low, both forensic treatment and diversion appeared to improve QoL when compared with incarceration. The environment domain of QoL was most often reported to improve. In the majority of studies included in this review, the GLM was likely not in use and improved QoL not a desired outcome, and the increasing measurement of QoL among offending populations is therefore additionally promising. In

future studies, more attention should be paid to the applicability of QoL instruments, and validating them among various offender groups could result in a set of high-quality and sensitive options.

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Supplemental Material

Supplemental material for this article is available online.

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