Substance use disorders in forensic psychiatric patients

Jolien van der Kraan [a], Robbert Jan Verkes [b], Kris Goethals [d], Annelies Vissers [a], Inti Brazil [c], Erik Bulten [a,*]

[a] Pompestichting Nijmegen, Nijmegen, The Netherlands
[b] Radboud University Nijmegen Medical Centre, Donders Institute for Brain, Cognition and Behaviour, Department of Psychiatry, Nijmegen, The Netherlands
[c] Donders Institute for Brain, Cognition and Behaviour, Radboud University Nijmegen, The Netherlands
[d] University Forensic Centre, Antwerp University Hospital, Belgium

ARTICLE INFO

ABSTRACT

There is a lack of detailed information on the role of substance use disorders (SUD) as a substantial factor in offences and treatment in forensic psychiatric patients. The aim of this study was to get a better understanding of these specifics. Clinical records of 193 male patients admitted to a Dutch forensic psychiatric hospital were scrutinized on anamnestic, diagnostic and risk assessment data. One of the central findings was that the prevalence of SUDs was high. Patients with an SUD had a more extensive criminal history, unstable and deviant lifestyle and higher risk of violent behavior than patients without a substance use disorder. No differences were found in duration of treatment, aggressive incidents and leave. Another important finding was that a distinction could be made between patients with substance use as a primary criminogenic risk factor and patients with substance use as a secondary risk factor. Although substance use is identified as a general risk factor, this study supports the idea of sub categorization of patients with an SUD and emphasizes the need for a different treatment approach. Further study is needed to identify specific treatment approaches, based on more differentiated profiles of these patients.

1. Introduction

Use of drugs and/or alcohol is associated with criminal behavior (Bennett, Holloway, & Farrington, 2008). The probability of exhibiting criminal behavior appears to be three to four times higher among drug users than among non-users and several studies have described this relationship (Elbogen & Johnson, 2009; Newcomb, Galaif, & Carmona, 2001; Philips, 2000; Steadman et al., 1998; Swanson, 1994). A decrease of substance use is related to a decrease of criminal behavior and recidivism (Gossop, Trakada, Stewart, & Witton, 2005). In contrast, an increase of substance use seems related to a greater risk of recidivism (Joe, Chastain, Marsh, & Simpson, 1990). Results from the National Epidemiologic Survey on Alcohol and Related Conditions in the United States (Elbogen & Johnson, 2009) indicate that the incidence of violence was higher among people with severe mental illness, but only for those characterized by a substance use disorder (SUD). In forensic psychiatric patients, being diagnosed with an SUD in patients at/during admission was found to be predictive of future reconvictions (Philipse, Koeter, van der Staak, & van den Brink, 2006). Patients who re-offend have been found to be more likely to use alcohol and/or drugs during treatment compared to patients who do not re-offend (Hildebrand, Spreen, Schönberger, Augustinus, & Hesper, 2006). In line with these findings, substance abuse or dependence is

regarded as a risk factor according to widely used instruments for the assessment of violence risk, such as the Historical Clinical Risk Management-20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997).

Furthermore, alcohol and/or drug disorders are associated with a number of factors that indirectly enhance risk of recurrence of criminal behavior. In general, patients with an SUD have greater difficulty in areas such as family relationships, employment, legal matters, housing, and health. These patients are considered a difficult group in the therapeutic settings due to their inclination towards extreme emotional reactions, high rates of comorbid psychiatric diagnoses, and the difficulty of getting them engaged in effective treatment until abstinence is achieved (Najavits & Weiss, 1994). Forensic psychiatric patients evading treatment more often use alcohol and/or drugs during treatment than patients who do not evade from treatment (Hildebrand et al., 2006).

Substance abuse or dependence is common among detained patients (Andersen, 2004; Wheatley, 1998). Likewise, prior substance abuse or dependence also seems to be common among forensic psychiatric patients in The Netherlands. Seventy percent of the Dutch forensic psychiatric patients are or have been abusing substances or show dependency at the time of admission (Greeven, 1997). Based on data registered by Dutch forensic psychiatric hospitals during 1995–2000, it was found that two out of three patients abused or were dependent on substances at the time of the offence (van Emmerik & Brouwers, 2001).

Importantly, however, the aforementioned studies provide relatively general insights into the impact of SUDs in forensic psychiatric settings.

* Corresponding author at: Postbus 31435, 6503 CK Nijmegen, The Netherlands
Tel.: +31 24 352 76 00; fax: +31 24 352 76 14.
E-mail address: e.bulten@pompestichting.nl (E. Bulten).

More in-depth details about the impact of SUDs during offences and also on the reactivity to treatment are still lacking for forensic psychiatric patients. For instance, clinical practice suggests that forensic patients with SUDs can be subdivided into a group with substance use as a primary criminogenic risk factor and another group with substance use as a secondary risk factor. In patients with substance use as a primary criminogenic risk factor the history of offence is directly related to substance use and/or substance use mediated the index offence. These patients often have a long-term pattern of substance use related to offences. However, for patients with substance use as a secondary risk factor the abuse is just one of several other criminogenic needs. Thus, probably different profiles exist between patients with and without SUDs, as well as within-group subdivisions. However, until now there has been no characterization of these between- and within-group differences in forensic psychiatric patients.

The aim of the present study was to contrast forensic psychiatric patients with SUDs against forensic psychiatric patients without SUDs on variables related to criminal behavior and treatment in order to get a better understanding of the specific factors that characterize each group. Gaining more specific knowledge about the potential differences between and within these two types of populations will promote the need to develop interventions that are tailored to the specific (differential) needs of each group.

2. Method

2.1. Sample

The cross-sectional study was conducted in 2009 in a Dutch forensic psychiatric hospital, the Pompe Foundation in Nijmegen. Records of 193 patients[1] (all male) in the clinic were included.

Patients in clinical care were either treated on wards for psychotic patients (26%) or on wards for non-psychotic patients (74%). These wards differed in treatment climate, i.e. psychotic patients resided on wards that provided a high amount of structure and a low level of expressed emotions. Of the 193 patients, 66.5% were native and 33.5% were immigrants by origin (at least one parent born outside the Netherlands). The average age was 41 years ($SD = 9.73$) and the average treatment duration was 78 months ($SD = 48.2$). The most common index offences[2] were (attempted) murder or manslaughter (42%), other violent offences (21%), and sexual offences against adults (20%). Other offences were sexual offences against minors (15%), arson (10%), threat (10%) and property crimes (with violence; 9%).

2.2. Procedure

Privacy of the patients was assured in accordance with the policy of the institution and analyses were conducted on anonymized data. Because this study was based on patient records, no informed consent was required. The clinical records of all patients were scrutinized and existing anamnestic and diagnostic data were retrieved from various reports by using a code book with strict criteria.[3] Besides prevalence of SUDs, the study also included information on context, motives, offence(s), insight, substance use during treatment, psychopathy, risk assessment, duration of treatment, aggressive incidents and leave. The variables were scored by an investigator. If the information in the records did not meet the requirements of the code book the records were excluded. Reliability checks were carried out by means of independent evaluation of ten randomly chosen files by two other

investigators. Their scorings were tested for reliability. The average Kappa-values for all variables were moderate to large and an overall agreement of 82% was found.

2.3. Instruments

Axis-I diagnoses were established according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). Patients were assessed at the time of conviction by a multidisciplinary team of psychiatrists and psychologists, mostly in the Observation Clinic of the Ministry of Justice (Pieter Baan Center, Utrecht). Table 1 provides information concerning the clinical disorders that were present in our sample.

Psychopathy was established using the PCL-R scores extracted from the clinical records. The Psychopathy Checklist-Revised (PCL-R; Hare, 2003) is a clinical rating scale consisting of 20 items that load on one of two factors: Factor 1 denotes disrupted interpersonal-affective behavior such as "selfish, callous and remorseless use of others" and Factor 2 labeled consists of items describing a "chronically unstable, antisocial and socially deviant lifestyle". Each item is scored as either 0 (not present), 1 (possibly present) or 2 (definitely present) to yield a maximum total score of 40 (Factor 1 range 0–16, Factor 2 range 0–18). Three items do not load on either of these factors. The scores are used to predict risk for criminal re-offence and probability of rehabilitation.

To assess the risk of violent behavior, the first HCR-20 scores after admission to hospital, retrieved from the clinical records, were included. The HCR-20 (Webster et al., 1997) is a checklist for indexing the risk of an individual to exhibit violent behavior. It consists of 20 items: 10 historical variables, 5 clinical variables, and 5 risk management variables. It includes variables that capture relevant past, present, and future considerations and it can be regarded as an important first step in the risk assessment process. Each item is scored by a number of clinicians as either 0 (not present), 1 (possibly present) or 2 (definitely present) to yield a maximum total score of 40. By means of consensus between clinicians, the scores and a clinical risk rating (low/moderate/high risk) are determined. For statistical analyses, scores were dichotomized into a score indicating a severe problem (HCR-score of 2) and another indicating no (severe) problem (HCR-score of 0 or 1). The item on substance use problems was excluded because patients with an SUD could score higher on the HCR-20 just because substance use is included as a risk factor in this instrument. This exclusion was carried out in order to reduce the chance of a potential bias in the distribution of the total scores brought about by a ceiling effect on this specific item.

Relapse in substance use and leave were determined by consulting the 'Monitor Informatiesysteem Terbeschikkingstelling (MITS)', a registration system to monitor patient information.

Aggressive incidents were set by the Staff Observation Aggression Scale-Revised (SOAS-R; Nijman et al., 1999) and the Social Dysfunction and Aggression Scale (SDAS; Wistedt et al., 1990). The SOAS-R is an instrument for monitoring the frequency, nature, and severity of aggressive incidents (acting out, (verbal) threat, (sexual) violence,

Table 1
Clinical disorders in forensic psychiatric patients ($N = 193$).

Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)	No SUD	SUPN	SUSN
	%	%	%
No clinical disorder	35	–	–
Sexual and gender identity disorders	32	–	8
Schizophrenia and other psychotic disorders	27	23	27
Disorders in infancy, childhood, or adolescence	5	12	6
Mood disorders	3	4	7
Impulse-control disorders	5	8	8
Anxiety disorders	2	–	7
Other	3	8	11

Patients can be diagnosed for more than one clinical disorder, therefore the percentage per group is over 100%.

---

[1] The Pompe Foundation has no admission criteria, patients are randomly assigned.
[2] The index offence is the offence for which the patient is convicted and that has led to their current admission. Patients can be convicted for more than one offence, therefore the percentage is over 100%.
[3] The code book can be obtained from the author.

suicide attempt or mutilation). The SDAS records a broad range of aggressive behaviors (non-directed and directed verbal aggressiveness, irritability, negativism, dysphoric mood, socially disturbed behavior, physical violence to things, personnel and others) over a period of time, including very mild forms of aggression (range 0–44).

Insight was determined by categorization based on the Scale to Assess Unawareness of Mental Disorder (SUMD; Amador & Strauss, 1990). Based on this categorization awareness of having a substance use disorder, awareness of substance use as a risk factor for recidivism and awareness of the need for treatment were determined. The outcomes were coded as 'aware', somewhat aware' or 'unaware'.

2.4. Statistical analyses

Statistical analyses were carried out using SPSS version 16.0. An alpha level of .05 was used for all statistical tests. Frequencies of categorical variables were compared using the χ^2 test and General Linear Models (GLMs) were used for continuous variables (with duration of treatment as covariate).

3. Results

3.1. Prevalence

Substance use disorders were diagnosed in 69% of all patients (Table 2), with substance use being the primary criminogenic need (SUPN) in 20% of these patients. In the remaining 80% of patients, substance use was the secondary criminogenic need (SUSN).

SUPN patients were more often diagnosed with substance dependence (83%), compared to SUSN patients (46%; $\chi^2 = 9.12$, $p < 0.01$). More specifically, SUPN patients more often were diagnosed with multiple substances dependence (58%), compared to SUSN patients (20%; $\chi^2 = 13.5$, $p < 0.001$). Alcohol use was more common in SUSN patients (54%) than in SUPN patients (23%; $\chi^2 = 6.49$, $p < 0.05$).

3.2. SUD in parents

Abuse of drugs or alcohol (present or past) of at least one of the parents was more frequent in patients with SUD (52%), compared to patients without SUD (17%; $\chi^2 = 17.1$, $p < 0.001$). No significant difference was found between SUPN and SUSN patients.

A trend was found between the average age of onset of substance use in SUPN patients ($M = 13.71$, $SD = 3.5$) and SUSN patients ($M = 16.6$, $SD = 7.1$; $F = 3.71$, $p = 0.06$).

Table 2
Substance use disorders in forensic psychiatric patients ($N = 133$).

Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)	SUPN %	SUSN %
Multiple substances abuse	8	13
Multiple substances dependence	58	20
Alcohol abuse	8	36
Alcohol dependence	15	19
Cannabis abuse	–	15
Cannabis dependence	19	13
Cocaine abuse	8	6
Cocaine dependence	15	9
Opioid abuse	4	–
Opioid dependence	8	4
Sedatives abuse	–	1
Sedatives dependence	4	2

Patients can be diagnosed for more than one substance use disorder, therefore the percentage per group is over 100%.

3.3. Motives

Most of the patients used substances to relieve (negative) emotions (57%), to feel euphoric/escape everyday life (40%), or to relax (37%). No significant differences were found between SUPN and SUSN patients (64% vs. 55% relieve (negative) emotions, 41% vs. 40% to feel euphoric/escape everyday life and 27% vs. 39% to relax, $\chi^2 = 0.24$, $p = 0.62$; $\chi^2 = 0.00$, $p = 1$; $\chi^2 = 0.59$, $p = 0.44$).

3.4. Criminal history

Patients with SUD were younger at first conviction ($M = 20.9$, $SD = 6.89$) than patients without SUD ($M = 25.8$, $SD = 11.4$; $F = 9.34$, $p < 0.01$). No significant differences were found between SUPN and SUSN patients.

In addition, patients with SUD had a higher number of convictions prior to the index offence(s) ($M = 7.48$, $SD = 0.5$), compared to patients without SUD ($M = 3.27$, $SD = 0.75$; $F = 22.15$, $p < 0.001$). SUPN patients had a higher number of convictions prior to the index offence(s) ($M = 10.9$, $SD = 1.21$), compared to SUSN patients ($M = 6.64$, $SD = 0.59$; $F = 9.84$, $p < 0.01$).

3.5. Index offence(s)

Patients without SUD more often committed sexual index offence(s) against minors (28%), compared to patients with SUD (7%; $\chi^2 = 14.7$, $p < 0.001$). Patients with SUD more often committed nonsexual and nonviolent index offence(s) (property crimes, arson; 17%), compared to patients without SUD (3%; $\chi^2 = 5.96$, $p < 0.05$). SUPN patients more often committed nonsexual and nonviolent index offence(s) (property crimes, arson; 42%), compared to SUSN patients (11%; $\chi^2 = 12.05$, $p < 0.01$). SUSN patients more often committed violent index offence(s) (63%), compared to SUPN patients (39%; $\chi^2 = 4.07$, $p < 0.05$).

Offences with an economic motive (obtain money by theft to buy intoxicating substances) were more common among SUPN patients (58%) than among SUSN patients (6%; $\chi^2 = 27.73$, $p < 0.001$). Substance use led to disinhibition more frequently in SUSN patients (82%) than in SUPN patients (46%; $\chi^2 = 10.29$, $p < 0.01$).

With regard to intoxication by alcohol during the index offence(s), a trend was found between SUPN (18%) and SUSN patients (46%; $\chi^2 = 3.54$, $p = 0.06$). No other differences were found on this measure during the index offence(s).

3.6. Insight

SUPN patients more often had full insight (of substance use as a risk factor for their delinquent behavior and needing treatment; 54%), compared to SUSN patients (29%; $\chi^2 = 4.48$, $p < 0.05$).

3.7. Risk assessment

Patients with SUD scored significantly higher on the risk of violent behavior according to the HCR-20 ($M = 24.0$, $SD = 5.87$), than patients without SUD ($M = 19.1$, $SD = 7.28$; $F = 5.08$, $p < 0.05$). No significant difference was found between SUPN and SUSN patients. Patients with SUD were relatively younger at the time of their first violent offence, had more employment problems and prior supervision failure, and showed more impulsivity, compared to patients without SUD (Table 3). SUPN patients had more prior supervision failure (81%) and showed more impulsivity (65%) and stress (77%) than SUSN patients (55%, 31% and 32%; $\chi^2 = 4.6$, $p < 0.05$, $\chi^2 = 8.79$, $p < 0.01$ and $\chi^2 = 7.3$, $p < 0.01$, respectively).

Table 3
The Historical, Clinical, Risk Management-20 (HCR-20) in forensic psychiatric patients ($N = 193$).

HCR-20 items	SUD	No SUD	Statistics	
	%	%	χ^2	p
H2: Young age first violent offence	56	46	5.07	<0.05
H4: Employment problems	66	31	15.84	<0.001
H10: Prior supervision failure	61	38	6.83	<0.01
C4: Impulsivity	38	18	6.86	<0.01

3.8. Duration of treatment

No significant differences were found concerning the duration of treatment between patients with and without SUD (75 months vs. 85 months, $F = 1.55$, $p = 0.21$), and between SUPN and SUSN patients (85 months vs. 73 months, $F = 1.79$, $p = 0.18$).

3.9. Substance use during treatment

Patients with SUD more often used substances during treatment ($M = 6.63$, $SD = 0.86$), compared to patients without SUD ($M = 1.23$, $SD = 1.27$; $F = 12.4$, $p < 0.01$). SUPN patients more often used substances during treatment ($M = 11.9$, $SD = 2.08$), compared to SUSN patients ($M = 4.99$, $SD = 1.04$; $F = 8.74$, $p < 0.01$).

3.10. Incidents

Considering SOAS-R and SDAS incidents (e.g. indirect or direct verbal aggression, irritability or negativism), no significant differences were found between patients with and without SUD (0.8 vs. 0.6 (SOAS-R) incidents, $F = 0.34$, $p = 0.56$ and 3.9 vs. 3.2 (SDAS) incidents, $F = 2.24$, $p = 0.14$), and between SUPN and SUSN patients (0.7 vs. 0.9 (SOAS-R) incidents, $F = 0.01$, $p = 0.95$ and 4.7 vs. 3.7 (SDAS) incidents, $F = 1.75$, $p = 0.19$).

3.11. Psychopathy

Patients with SUD scored significantly higher on Factor 2 ($M = 10.0$, $SD = 3.82$), labeled as "chronically unstable, antisocial and socially deviant lifestyle", than patients without SUD ($M = 7.11$, $SD = 3.96$; $F = 16.8$, $p < 0.001$). SUPN patients scored significantly higher on Factor 2 ($M = 11$, $SD = 2.53$) than SUSN patients ($M = 9.57$, $SD = 4.01$; $F = 8.19$, $p < 0.01$). No difference was found on Factor 1.

3.12. Leave

There were no significant differences between patients with and without SUD in the amount of months between admission to hospital and permission for supervised (26 months vs. 22 months, $F = 1.95$, $p = 0.16$) and unsupervised leave (39 months vs. 38 months, $F = 0.3$, $p = 0.58$). There were also no significant differences between SUPN and SUSN patients (supervised leave 22 months vs. 27 months, $F = 2.06$, $p = 0.15$ and unsupervised leave 43 months vs. 39 months, $F = 0.59$, $p = 0.45$).

4. Discussion

The results of the present study show that the prevalence of substance use disorders in forensic psychiatric patients is high and that this has a strong association with the offences that resulted in admission to hospital. In addition to being a diagnostic classification established according to the DSM-IV, substance use was also a very important criminogenic dynamic risk factor in these patients. In line with the literature, patients with an SUD have a more extensive criminal history, a more unstable and deviant lifestyle and higher risk of violent behavior than patients without an SUD (Bennett et al., 2008; Elbogen & Johnson, 2009; Gossop et al., 2005; Joe et al., 1990; Newcomb et al., 2001; Philips, 2000; Philipse et al., 2006; Steadman et al., 1998; Swanson, 1994). Also, importantly, our results offer empirical evidence for the sub-categorization within patients with an SUD. They indicate that a distinction can be made between patients with substance use as a primary criminogenic risk factor and patients with substance use as a secondary risk factor. Interestingly, in 20% of the patients within the group with an SUD in this study, substance use was a primary criminogenic risk factor (history of offence(s) (almost) directly related to substance use and/or substance use (almost) entirely mediated the index offence). Substance use seemed to be a secondary criminogenic risk factor in the remaining 80% of patients in this group.

In contrast to previous studies (Hildebrand et al., 2006; Najavits & Weiss, 1994), there were no differences for certain treatment factors (duration, incidents and leave) between patients with and without an SUD. However, in the group of patients with an SUD, specific differences were found between patients with substance use as a primary risk factor and patients with substance abuse as a secondary criminogenic need. This indicates that these patients are not identical and that each group might benefit more from different treatment approaches focused on each group's specific needs (Marlowe et al., 2011).

From this therapeutic perspective, these findings can be integrated in assumptions made by the risk–needs–responsivity framework known as the 'What Works Principles'. This model postulates that patients with higher risk of recidivism need a higher treatment intensity (Andrews, Bonta, & Wormith, 2006; Thanner & Taxman, 2003) and that a proper tuning of intensity and duration of intervention is of great importance for reducing the risk of recidivism. Having a higher risk profile, the treatment of patients with SUD should be more intense. Such fine tuning is predicted to lead to greater effectiveness of interventions (Lowenkamp, Latessa, & Holsinger, 2006). In the subgroup of patients with substance use as a primary criminogenic risk factor, treatment should focus on lifestyle variables (social network, user habits) because substance use is deeply rooted (young age at onset of use, dependence, substance use often led to property offence(s)). These patients more often used substances during treatment even within the restricted environment of a forensic clinic. This result not only highlights that substance use is a perseverant issue, but also points out that its presence is more apparent to the SUPN patients themselves. One consequence is that treatment becomes more 'negotiable' in these patients, especially in combination with the higher level of insight found in this subgroup.

On the other hand, in patients with substance use as a secondary criminogenic risk factor, more attention should be paid to increasing their level of insight (apart from criminogenic needs other than substance use), because substance use is often trivialized. Insight has an effect on treatment motivation, which is an important responsivity factor that influences treatment effectiveness. Thus, identifying specific criminogenic needs and responsivity factors, in accordance with the What Works Principles, is important to tailor treatment for these specific groups of patients.

Although the study was conducted in one forensic psychiatric hospital, the population seems representative for the population in all Dutch forensic psychiatric hospitals, as patients are randomly assigned to these institutions. However, a few methodological limitations must be addressed here. First of all, this was a retrospective study, based on case note material obtained for clinical purposes. Second, as a result of the first note, not all necessary data were clearly documented and the presence of some missing data had to be accepted, although there are no indications for selection bias. In order to deal with these limitations future studies should employ a prospective approach.

5. Conclusions

A few recommendations concerning treatment can be made based on the present results. Although substance use is identified as a general risk factor, this study provides empirical support for the presence of sub-categories in patients with an SUD. This emphasizes the need for tailored treatment methods and that both between- and within-group differences should be taken into account. Thus, the present study highlights the importance of considering group characteristics and also offers novel insights that might be useful for the development of interventions targeting substance use as a criminogenic dynamic risk factor in forensic psychiatric patients. Further study is needed to identify other characteristics that might advance our understanding of these types of clinical samples and their subdivisions.

Acknowledgement

References

Amador, X. F., & Strauss, D. H. (1990). *The Scale to Assess Unawareness of Mental Disorder (SUMD).* Columbia University and New York State Psychiatric Institute.
American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.)Washington DC: American Psychiatric Association.
Andersen, H. S. (2004). Mental Health in Prison Populations. A review – With special emphasis on a study of Danish prisoners on remand. *Acta Psychiatrica Scandinavica, 110,* 5–59.
Andrews, D. A., Bonta, J., & Wormith, S. J. (2006). The recent past and near future of risk and/or need assessment. *Crime & Delinquency, 52,* 7–27.
Bennett, T., Holloway, K., & Farrington, D. (2008). The statistical association between drug misuse and crime: A meta-analysis. *Agression and Violent Behavior, 13,* 107–118.
Elbogen, E. B., & Johnson, S.C. (2009). The intricate link between violence and mental disorder. Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry, 66*(2), 152–161.
Gossop, M., Trakada, K., Stewart, D., & Witton, J. (2005). Reductions in criminal convictions after addiction treatment: 5-year follw-up. *Drug and Alcohol Dependence, 79,* 295–302.
Greeven, P. G. J. (1997). *De intramurale behandeling van psychiatrische patiënten met een persoonlijkheidsstoornis; een empirische studie.* Academisch proefschrift: Universiteit Leiden.
Hare, R. D. (2003). *Manual for the revised psychopathy checklist* (2nd ed.)Toronto, ON, Canada: Multi-Health Systems.
Hildebrand, M., Spreen, M., Schönberger, H. J. M., Augustinus, F., & Hesper, B.L. (2006). *Onttrekkingen tijdens verlof, ontvluchtingen en recidives tijdens de tbs-behandeling in de jaren 2000-2005 (Actuele kennis 5.).*
Joe, G. W., Chastain, R. L., Marsh, L., & Simpson, D.D. (1990). Relapse. In D.D. Simpson, & S. B. Sells (Eds.), *Opioid addiction and treatment* (pp. 121–136). Mabar: Krieger Publication.
Lowenkamp, C. T., Latessa, E. J., & Holsinger, A.M. (2006). The risk principle in action: What have we learned from 13,676 offenders and 97 correctional programs? *Crime & Delinquency, 52*(1), 77–93.
Marlowe, D. B., Festinger, D. S., Dugosh, K. L., Caron, A., Podkopacz, M. R., & Clements, N. T. (2011). Targeting dispositions for drug-involved offenders: A field trial of the Risk and Needs Triage (RANT)™. *Journal of Criminal Justice, 39*(3), 253–260.
Najavits, L. M., & Weiss, R. D. (1994). Variations in therapist effectiveness in the treatment of patients with substance use disorders: An empirical review. *Addiction, 89,* 679–688.
Newcomb, M.D., Galaif, E. R., & Carmona, J. V. (2001). The drug-crime nexus in a community sample of adults. *Psychology of Addictive Behaviors, 15*(3), 185–193.
Nijman, H. L. I., Muris, P., Merckelbach, H. L. G. J., Palmstierna, T., Wistedt, B., Vos, A.M., et al. (1999). The Staff Observation Aggression Scale-Revised (SOAS-R). *Aggressive Behavior, 25,* 197–209.
Philips, P. (2000). Substance misuse, offending and mental illness: A review. *Journal of Psychiatric and Mental Health Nursing, 7,* 483–489.
Philipse, M. W. G., Koeter, M., van der Staak, C. P. F., & van den Brink, W. (2006). Static and dynamic patient characteristics as predictors of criminal recidivism: A prospective study in a Dutch forensic psychiatric sample. *Law and Human Behavior, 30*(3), 309–327.
Steadman, H. J., Mulvey, E. P., Monahan, J., Robbins, P., Applebaum, P.S., Grisso, T., et al. (1998). Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhood. *Archives of General Psychiatry, 55,* 393–401.
Swanson, J. W. (1994). Mental disorder, substance abuse, and community violence: An epidemiological approach. In J. Monahan, & H. J. Steadman (Eds.), *Violence and mental disorder: Developments in risk assessment* (pp. 75–80). Chicago: University of Chicago Press.
Thanner, M. H., & Taxman, F. S. (2003). Responsivity: The value of providing intensive services to high-risk offenders. *Journal of Substance Abuse Treatment, 24,* 137–147.
van Emmerik, J. L., & Brouwers, M. (2001). *De terbeschikkingstelling in maat en getal: een beschrijving van de tbs-populatie in de periode 1995–2000.* Den Haag: Ministerie van Justitie.
Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1997). *Historical/Clinical/Riskmanagement-20 (HCR-20). Assessing risk for violence. Version 2.* Burnaby. British Columbia: Simon Fraser University, Mental Health, Law and Policy Institute.
Wheatley, M. (1998). The prevalence and relevance of substance use in detained schizophrenic patients. *Journal of Forensic Psychiatry, 9,* 114–129.
Wistedt, B., Rasmussen, A., Pedersen, L., Malm, U., Träskman-Bendz, L., Wakelin, J., et al. (1990). The development of an observer-scale for measuring social dysfunction and aggression. *Pharmacopsychiatry, 23*(6), 249–252.