

## Chapter 5

# Assessment of Benzodiazepine Dependence in Alcohol and Drug Dependent Outpatients

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## ABSTRACT

In this study on 99 outpatients who were being treated for alcohol and/or drug dependence and also using benzodiazepines (BZDs), prevalence rates of DSM-III-R and ICD-10 substance dependence diagnoses were ascertained and scalability, reliability and validity of the scales of the *Benzodiazepine Dependence Self-Report Questionnaire (Bendep-SRQ)* were assessed. The latter properties were investigated by Rasch analyses, discriminability coefficients, test-retest coefficients and factor analyses. BZD dependence was found to be a prevalent additional diagnosis. The psychometric findings appear to support the use of the Bendep-SRQ at outpatient addiction centres, which could contribute to a more differentiated treatment of poly-substance dependence.

## INTRODUCTION

It has been recognized that benzodiazepines (BZDs) are the most commonly prescribed class of psychotropic drugs.<sup>1-3</sup> In a number of studies high rates of BZD use have been reported in samples of patients treated for alcohol or opiate problems. In their review of studies on BZD use among alcoholic in- and outpatients, Ciraulo et al. (1988)<sup>4</sup> reported that the frequencies of BZD use ranged from 3 to 41%. Based on urinalysis, rates of 33% and 31% BZD use were reported in alcoholic out- and inpatients, respectively.<sup>5,6</sup>

Similar rates of BZD use were reported with respect to Malaysian and Australian opiate users: 39 % in 30 previous days<sup>7</sup> and 37% in the last month of typical opiate use.<sup>8</sup> In methadone maintenance patients, the rates of BZD use were similar as well: 27% was detected by means of urinalysis,<sup>9</sup> while 37% BZD use was estimated in the month prior to investigation.<sup>10</sup>

Higher rates of BZD use were encountered in opiate users who were admitted for inpatient addiction treatment: 69% of heroin addicts were using BZDs at the time of admission<sup>11</sup> and 65-70% of the urinalysis tests of methadone maintenance patients were positive for BZDs during a single month of admission.<sup>12</sup>

Considering the high rates of BZD use in alcohol and opiate dependent patients, mentioned above, a high risk of BZD dependence may be presumed. Nevertheless, only a few studies have been published on the prevalence of BZD dependence in alcohol and drug dependent BZD users. The studies by Ross and San et al.,<sup>6,11</sup> based on the DSM-III criteria, did not reflect the currently-held view on substance dependence and they did not distinguish BZDs from other sedative-hypnotics. The DSM-III-R and ICD-10 criteria,<sup>13,14</sup> which have been derived from the Substance Dependence Syndrome,<sup>15,16</sup> were recently applied to a sample of

99 outpatients at community-based addiction centres (CBACs). Past-year prevalence rates of BZD dependence were 59% (DSM-III-R) and 71% (ICD-10).<sup>17</sup>

These rates confirm that BZD dependence is often a major additional problem in alcohol and drug dependent patients and should therefore receive more specific attention. To further explore the relationship between dependence on BZDs and other substances in the above-mentioned CBAC sample, the prevalences of the past-year and lifetime DSM-III-R and ICD-10 dependence diagnoses with respect to BZDs, alcohol and the most common illicit drugs are assessed in the present study.

This diagnostic approach with respect to BZD use in alcohol and drug dependent patients could be augmented by a more comprehensive evaluation of the severity of BZD dependence. Recently, the *Benzodiazepine Dependence Self-Report Questionnaire (Bendep-SRQ)*, has been developed to fulfil this aim.<sup>18</sup> The Bendep-SRQ is self-administered, requires no preliminary training and can easily be applied for screening and monitoring purposes. It has been shown to comprise four Rasch homogeneous scales. Together, the scores on these scales constitute a multidimensional severity profile of BZD dependence. So far, the Bendep-SRQ scales have yielded good scalability, reliability and validity results in general practice patients, psychiatric outpatients and self-help patients.<sup>18</sup> However, to justify the use of the Bendep-SRQ for a more comprehensive evaluation of the severity of BZD dependence in alcohol and drug dependent patients, separate assessment of the psychometric properties of the Bendep-SRQ is required in alcohol and drug dependent patient samples. Therefore, in the present study, the scalability, reliability and validity of the Bendep-SRQ scales were evaluated in the above-mentioned CBAC outpatient sample.

## **SUBJECTS AND METHODS**

### **Settings and subjects**

This study was conducted at six community-based outpatient addiction centres (CBACs) in the province of Gelderland, the Netherlands. At the CBACs patients were being treated for their substance dependence and/or misuse problems and related psychosocial problems by counselling or methadone maintenance. In general, the methadone users stuck to the latter, which was a supportive approach. Methadone maintenance was combined with counselling in only a few cases.

To participate in the investigation the subjects had to meet the following inclusion criteria: 1) actual BZD use; no distinction was made between prescribed and illicit BZD use; 2) average frequency of BZD use of at least once a week; 3) age between 17 and 70 years; 4) treatment for substance dependence/misuse, not only for gambling; 5) ability to speak and read Dutch. The patients who visited the CBACs during the period of investigation were screened according to these inclusion criteria. Eligible patients were asked to participate by a representative of the treatment team. Informed consent was obtained from 76% of the outpatients (99 out of the 131). This response rate was inflated a little by the fact that a small number of methadone users did not comply with the above-mentioned selection procedure and could therefore not be included in our database. The total sample of participants consisted of 99 subjects.

At the time of investigation, the policy of the CBACs with respect to BZD use was to treat BZD dependence or misuse only if it accompanied another substance dependence or misuse problem. If there only seemed to be a BZD dependence or misuse problem, the patient was referred to a community-based outpatient psychiatric department. This implies that our

sample consisted of polysubstance users, using BZDs and at least one other substance.

## **Study design**

This study formed part of a larger project being conducted by the University of Nijmegen Research Group on Addictive Behaviours (UNRAB) in the Netherlands on the detection and diagnosis of BZD dependence. The study population participated in two interviews, separated by three weeks. During the first interview, sociodemographic data were collected, followed by the administration of the Benzodiazepine Dependence-Self Report Questionnaire (Bendep-SRQ), the Benzodiazepine Dependence-Structured Diagnostic Interview (Bendep-SDI) and the Schedules for Clinical Assessments in Neuropsychiatry (SCAN).<sup>19</sup> The Bendep-SRQ and Bendep-SDI have been constructed by our own research group.<sup>18</sup> The second interview, which was conducted by the same interviewer as the first, consisted of a second administration of the Bendep-SRQ, followed by the Symptom Checklist-90 (SCL-90)<sup>20</sup> and the Addiction Severity Index-Revised (ASI-R).<sup>21</sup>

## **The Schedules for Clinical Assessments in Neuropsychiatry (SCAN)**

The SCAN, in which both the DSM-III-R and ICD-10 substance dependence criteria are operationalized in a semi-structured format, were used to make DSM-III-R and ICD-10 past year (PY) and lifetime (LT) diagnoses of BZD dependence, while reserving the category 'sedatives' for BZDs only. More details about the SCAN and its application to BZD users have been given in preceding reports.<sup>17,22</sup>

## **The Benzodiazepine Dependence Self-Report Questionnaire (Bendep-SRQ)**

The Bendep-SRQ was constructed at the Department of Psychiatry of the University

Hospital Nijmegen, the Netherlands, with the aim of reflecting the severity of BZD dependence. The construction process of the Bendep-SRQ and its composition have been described in a previous report.<sup>18</sup> In the latter study, four Rasch homogeneous scales were extracted from the item pool of the Bendep-SRQ, which appeared to reflect 'Problematic Use', 'Preoccupation', 'Lack of Compliance' and 'Withdrawal'. The items of these scales were shown in this previous report. The authors can provide instructions with regard to the computation of the scale scores on request, but these scores are also automatically presented when the Bendep-SRQ is administered on the internet site <http://baserv.uci.kun.nl/~fzitman/Bendep-SRQ.html>.

Analogously to the earlier study, the items of the Bendep-SRQ scales, which are 5-point rated, were dichotomized between the response options 2 (this is not true for me) and 3 (this is partly true, partly false for me) in order to apply Rasch analysis.

#### *Item Scalability*

In the previous study by Kan et al. on GP patients, psychiatric outpatients and self-help patients,<sup>18</sup> theoretical rationales were formulated to establish the construct validity of the Rasch-homogeneous Bendep-SRQ scales. In the present study we repeated the Rasch analyses on the same scales in the sample of CBAC patients who were using BZDs.

*Rasch analysis.* While using the Bendep-SRQ scales, which are the sumscores of the dichotomized item responses, certain assumptions are implicitly made, which are specified in the Rasch model. To justify the use of the sumscores these assumptions must be tested, which implies that the Rasch model should hold true. The assumptions from which the Rasch model can be derived and the required additive structure underlying the observed data have been recapitulated in earlier reports.<sup>17,18,23</sup> In essence, while the item responses depend on the

respective underlying probabilities in a random way, the response probabilities themselves depend in a deterministic way on the subject and item scale values. According to the Rasch model, both subjects and items can be arrayed on a common unidimensional scale and the items have equal discriminative power (i.e. the property of equi-discriminability). Glas<sup>24</sup> has developed two statistical tests for the dichotomous Rasch model, which are known as R1 and R2. The statistic R1 is especially sensitive to equi-discriminability, while the statistic R2 is sensitive to unidimensionality and local stochastic independence. If R1 is not significant at the 1% significance level ( $P > 0.01$ ) the null hypothesis that all the items have equal discriminative power cannot be rejected and equi-discriminability can be assumed. Similarly, unidimensionality and local stochastic independence hold true when R2 is not significant ( $P > 0.01$ ). Rasch-homogeneity is demonstrated if both statistics hold true, meaning that the sumscore across items is a sufficient statistic for the subject scale and that the sumscore across subjects is a sufficient statistic for the underlying item scale. To compute R1 and R2 the Rasch Scaling Program (RSP) was used.<sup>25,26</sup>

### *Reliability*

To evaluate the reliability of the Bendep-SRQ scales, the subject discriminability, item discriminability and test stability were assessed.

*Subject discriminability (Internal Consistency).* Subject discriminability implies that the subjects should differ systematically, i.e. the variation between subjects should be larger than the variation due to random error. The subject discriminability of the Bendep-SRQ scales was evaluated by means of the KR-20 coefficient. The size of KR-20 reflects the reliability of the scale, as the error variance of the estimator decreases if KR-20 increases.

*Item discriminability.* This should not be confused with the above-mentioned term equi-



discriminability. It implies that the items should differ systematically, i.e. the variation between items should be larger than the variation due to random error. This was tested by Cochran's Q test.<sup>27</sup> If the test result is significant, items can be considered to occupy distinct points on the scale. Additionally, analogous to the concept of reliability as described by Hoyt,<sup>28</sup> which is a measure of inter-subject discriminability, a measure of inter-item discriminability has recently been developed: the item discriminability coefficient (IDC).<sup>18</sup> On the premise that the underlying item response model holds true, the IDC shows to what extent the differences between the items are systematic. The higher the IDC, the more powerful the predictions about the item scale will be.

*Stability.* To assess the test-retest reliability of the Bendep-SRQ scales, Pearson Product-Moment correlation coefficients were computed from the Bendep-SRQ data obtained at the first and the second interviews. The subjects who had discontinued their BZD use in the period between the interview sessions were excluded from the analysis.

### *Validity*

The validity of the Bendep-SRQ scales was assessed in terms of construct, concurrent and discriminant validity.

*Construct Validity.* To establish the construct validity of the Bendep-SRQ scales theoretical rationales have been formulated<sup>18</sup> to explain the specific item orders based on increasing Rasch scale values, reflecting increasing severity levels of the constructs. To comply with the postulated theoretical rationales, the estimates of the Rasch scale values in the present study should approximately replicate the specific item orders of the Bendep-SRQ scales in the former study.<sup>18</sup> This would further support the construct validity of the Bendep-SRQ scales.

*Concurrent and Discriminant Validity.* To investigate the concurrent and discriminant validity of the Bendep-SRQ we conducted Maximum Likelihood factor analyses with Varimax rotation on the data matrix of the subjects who completed both interviews (n = 91). A non-significant Chi square test result ( $p > .05$ ) demonstrating goodness of fit was required to accept the factor solution. The data matrix consisted of the sumscores of the Bendep-SRQ scales except for 'Withdrawal' (in order to avoid the selection of patients with withdrawal experience only and thereby also reducing the sample size for factor analysis), the SCL-90 subscales, the ASI-R problem severity scores and either the Rasch-homogeneous ICD-10 or DSM-III-R BZD dependence scale. The latter two scales consisted of subsets of substance dependence items of the SCAN, as described in a separate paper.<sup>17</sup> The concurrent validity of the Bendep-SRQ is supported when the Bendep-SRQ scales, the ICD-10 or DSM-III-R BZD dependence scale and the ASI problem severity score for drug use (which includes BZD use) load substantially on a common factor, which can be interpreted as a BZD dependence factor. If the sumscores of the SCL-90 subscales and the remaining ASI problem severity scores load substantially on different factors, this supports the discriminant validity of the Bendep-SRQ scales.

## **RESULTS**

### *Sociodemographic features and aspects of BZD use*

Table 1 shows a number of sociodemographic characteristics and some aspects of BZD use at the time of investigation. Most subjects were male, Dutch, had no steady partner and were receiving unemployment or disability benefits. The most frequent level of education was the

primary level. This pattern of characteristics was most apparent in the methadone users, except for the fact that they comprised more subjects with non-Dutch cultural backgrounds. On average, the BZD dose used exceeded the therapeutic doses which are recommended by the WHO, as is shown by the values of 'Mean Daily Dose/ Defined Daily Dose' (MDD/DDD) which were greater than 1. The mean duration of BZD use, based on the BZD which had been used for the longest period, was also considerable (69 months in the total sample). The values of the quartiles in Table 1 show that the MDD/DDD and BZD duration values were inflated by the patients who had extremely high values. Again, these features were most prominent in the methadone users.

Figure 1 shows the frequencies of the separate BZDs which were used. Oxazepam and diazepam were the most commonly used BZDs. The use of flunitrazepam was only remarkable in the methadone users (23%). Of course, these frequencies do not simply reflect the dependence liability of each BZD, but are also related to prescribing habits and the availability and costs of BZDs on the illicit market.

**Table 1. Sociodemographic variables and aspects of BZD use in the BZD users at CBACs**

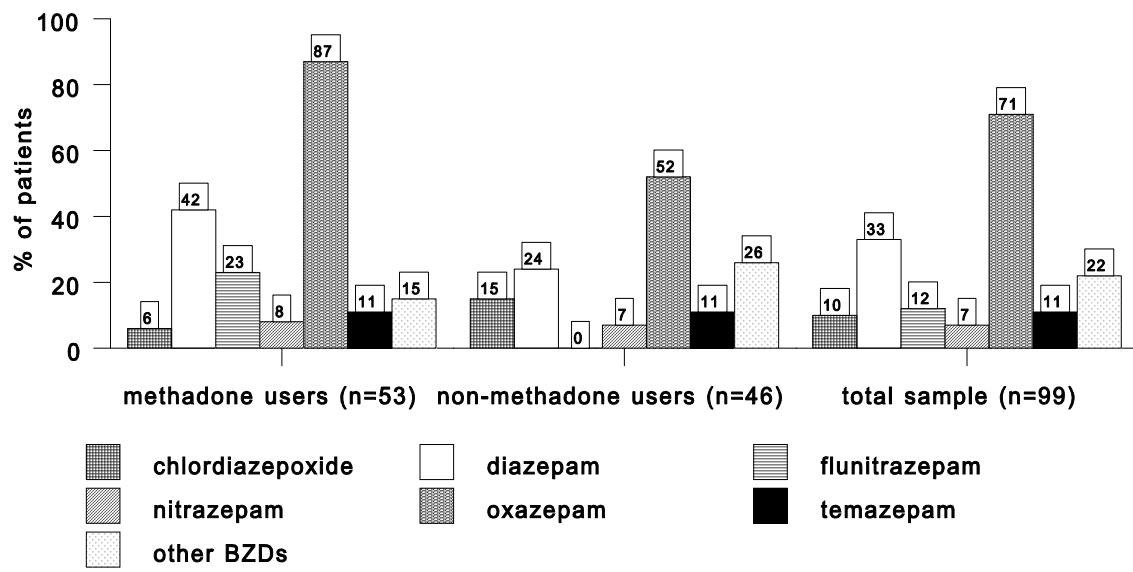
Variables	Methadone users (n=53)	Non-methadone users (n=46)	Total sample (n=99)
Sex (%*)			
male	79	59	70
female	21	41	30
Mean age (years)±sd	35 ± 7	43 ± 11	38 ± 10
Cultural Background (%)			
Dutch	83	100	91
Otherwise	17	0	9
Marital/social status (%)			
Single/never married	49	24	37
Engaged / steady relationship	15	11	13
Married	4	28	15
Divorced	28	28	28
Widowed	4	9	6
Living arrangement (%)			
Alone	42	41	41
With partner	9	39	23
Otherwise	49	20	36
Level of education (%)			
Primary level	43	46	45
Secondary level	43	39	41
Advanced level	14	15	14
Financial income (%)			
Profession	4	13	8
Unemployment benefit	72	33	54
Disability benefit	23	28	25
Pension	0	7	3
Partner's income	0	13	6
Otherwise	1	6	4
MDD/DDD <sup>~</sup>	3.6	1.4	2.5
Quartiles	1.3 - 2.5 - 3.6	.5 - 1.0 - 2.0	.8 - 1.5 - 3.0
Mean duration of BZD <sup>#</sup> use (months)	74	63	69
Quartiles	24 - 60 - 120	9 - 24 - 102	12 - 36 - 120

\*% : percentages are given in rounded numbers

<sup>~</sup>MDD/DDD : Mean Daily BZD Dose/Defined Daily BZD Dose

<sup>#</sup>BZD : if more than 1 BZD was being used, the duration was based on the BZD which had been used the longest

Figure 1. BZDs used by CBAC outpatients



**Table 2. Past-year (PY) and lifetime (LT) prevalences of DSM-III-R and ICD-10 substance dependence diagnoses in CBACs outpatients.**

Diagnosis	Methadone users (n=53)				Non-methadone users (n=46)				Total sample (n=99)			
	DSM-III-R		ICD-10		DSM-III-R		ICD-10		DSM-III-R		ICD-10	
	PY	LT	PY	LT	PY	LT	PY	LT	PY	LT	PY	LT
BZD Dependence (%*)	79	85	87	90	37	59	54	63	59	72	71	78
Alcohol Dependence (%)	33	54	27	50	63	87	63	85	47	69	44	66
Opiate Dependence (%)	94	96	94	96	7	15	9	15	53	58	54	58
Cocaine Dependence (%)	29	67	25	60	2	11	2	11	16	41	14	37
Cannabis Dependence (%)	21	39	23	39	7	13	7	11	14	27	15	26
Stimulant Dependence (%)	2	33	2	25	2	9	0	7	2	21	1	16
Hallucinogen Dependence (%)	2	8	2	6	0	0	0	0	1	4	1	3
BZD & Alcohol Dependence (%)	33	52	27	50	30	50	39	52	32	51	33	51
BZD & Opiate Dependence (%)	79	85	85	89	4	15	9	15	44	52	49	54
BZD & Cocaine Dependence (%)	21	56	21	54	2	9	2	9	12	34	12	33

%\*: percentages are given in rounded numbers

### *Prevalences of DSM-III-R and ICD-10 Dependence Diagnoses*

In Table 2 the prevalence figures of the past year and lifetime DSM-III-R and ICD-10 substance dependence diagnoses are shown in the CBAC outpatients who were using BZDs. The prevalences of the combinations of BZD dependence and the other most frequent dependence diagnoses are also given. Overall, BZD dependence was the most frequent diagnosis in this selected CBAC sample, ranging from 59% (past-year DSM-III-R) to 78% (lifetime ICD-10); in the methadone users BZD use was mainly combined with opiate dependence; in the non-methadone users with alcohol dependence. Apparently, if BZD use accompanies dependence on other substances, BZD dependence is the most probable additional dependence diagnosis. Alcohol, cocaine and cannabis dependence were also abundant in the methadone users. On the other hand, stimulant and hallucinogen dependence were relatively uncommon.

### *Scalability*

As is shown in Table 3, the R1 and R2 test results of the Rasch analyses on the Bendep-SRQ scales were non-significant ( $P > 0.01$ ), except for the R2 of the 'Lack of Compliance' scale ( $P = 0.007$ ). However, this significant value was found to be due to a very high contribution of score one. In such a case, this can be corrected for by leaving out the scores one, which resulted in a non-significant R2 value. Therefore, the Bendep-SRQ Rasch scales formerly found in a sample of GP patients, psychiatric outpatients and self-help patients,<sup>18</sup> were confirmed in CBAC outpatients, because the Rasch model was not rejected in any case.

**Table 3. Results of Rasch analyses by RSP on Bendep-SRQ scales in CBAC outpatients**

Bendep-SRQ Scale	i	R1	df	p	g	R2	df	p	n
Problematic Use	5	7.54	4	.11	2	8.62	8	.38	71
Preoccupation	5	8.70	8	.37	3	13.89	8	.08	59
Lack of Compliance	5	7.38	8	.50	3	21.13	8	.007 <sup>#</sup>	71
Lack of Compliance *	5	10.32	8	.24	3	9.92	8	.27	58
Withdrawal	5	9.08	4	.06	2	11.67	8	.17	52

RSP : Rasch Scaling Program<sup>25</sup>  
R1 and R2 : test statistics of Rasch analysis<sup>24</sup>  
i : number of items in the scale  
df : degrees of freedom  
p : p-value  
g : number of subgroups  
n : number of subjects left in the analysis  
# : contribution of score one 10.35  
Lack of Compliance\* : repeated Rasch analysis on sample without the scores one on Lack of Compliance scale



### *Reliability*

The subject discriminability, item discriminability and test stability results, shown in Table 4, indicated good reliability of all the Bendep-SRQ scales with respect to the total CBAC sample.

In the subgroup of methadone users, inconsistent reliability results were encountered with respect to the 'Problematic Use' scale, which is intended to measure the 'degree of awareness of problematic BZD use'<sup>18</sup>; the low IDC value of .32 was found to be due to the relatively invariable response statistics of the items (similar high means, similar low variances), which minimized their systematic differences. Compared to the higher IDC values formerly found in GP patients and psychiatric outpatients<sup>18</sup> and presently in the non-methadone users, more extreme items will need to be added to increase the threshold at the upper end of this scale to increase its item discriminability in the methadone users. However, it is questionable whether such an extension towards 'more extreme degrees of the awareness of problematic BZD use' would still be clinically relevant. Despite the low item discriminability, the KR-20 value of .53 still indicated moderate subject discriminability, while the TRT correlation coefficient of .76 indicated good stability of the sumscore over the period of three weeks between the two measurements. The high TRT value therefore appeared to reflect a low tendency of change with respect to the drug-related problems in opiate users in the three week period between the measurements.

The opposite phenomenon was also encountered; the TRT values of the 'Preoccupation' and 'Withdrawal' scales were only moderate in the methadone and non-methadone users, while the subject and item discriminability values were good. Unlike 'Problematic Use', the true scores of 'Preoccupation' and 'Withdrawal' are probably more variable in time due to the influence of

**Table 4. Reliability of the Bendep-SRQ scales; M: Methadone users (n=53); NM: Non-methadone users (n=46); TS: Total sample (n=99)**

Sample	I. Problematic Use			II. Preoccupation			III. Lack of Compliance			IV. Withdrawal <sup>#</sup>		
	M	NM	TS	M	NM	TS	M	NM	TS	M	NM	TS
Subject discriminability												
KR-20	.53	.65	.65	.75	.64	.70	.71	.72	.70	.79	.77	.78
Item discriminability												
Cochran's Q	5.72	20.79	15.82	15.83	39.40	43.67	92.75	17.80	94.32	27.65	12.36	31.14
p	.221	<.001	.003	.003	<.001	<.001	<.001	.001	<.001	<.001	.015	<.001
IDC	.32	.82	.75	.77	.92	.92	.98	.79	.97	.87	.69	.88
Test-retest Stability												
PM correlation <sup>\$</sup>	.76	.78	.81	.57	.78	.69	.71	.84	.80	.62	.56	.61
p	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	.001	<.001

<sup>#</sup> : Respondents who never reduced or discontinued BZD use were excluded, leaving: M: n =51, NM: n = 36, TS: n =87

KR-20 : Kuder-Richardson-20 reliability coefficient

IDC : Item Discriminability Coefficient

<sup>\$</sup> : Subjects who had discontinued BZD use before the retest session were excluded, leaving: M: n =50, NM: n =38, TS: n =88

the use of other substances or other substance-related factors. Therefore, the lower TRT values of these scales might merely reflect sensitivity to this true variability in time.

### *Construct Validity*

The present differences between the item-orders, based on increasing scale value estimates yielded by the Rasch analysis and the item orders found in the former study on the Bendep-SRQ,<sup>18</sup> did not exceed a range of twice the standard error of the scale value estimate. This approximate replication of the item-orders provided further support for the construct validity of the Bendep-SRQ scales.

### *Discriminant and Concurrent Validity*

The results of the Maximum Likelihood Factor Analyses with Varimax rotation are shown in Table 5. Goodness of fit (Chi square,  $p > .05$ ) could only be ascertained when four factors were extracted, in the case of the matrix with the ICD-10 as well as the matrix with the DSM-III-R BZD dependence scale. The following interpretation of this four factor solution is not necessarily the most proper one, but it appeared to be the most plausible. In support of the discriminant validity of the Bendep-SRQ scales, the first factor appeared to be a distinct pathology dimension of psychological and physical problems not related to substance dependence, as all the SCL-90 subscales and the ASI-R severity scores on physical and, in the case of the DSM-III-R, on psychiatric problems showed the highest loadings on this factor.

In support of the concurrent validity, the second factor was nearest to the expected BZD dependence factor. The highest loadings of the Bendep-SRQ scales 'Problematic Use' and

**Table 5. Maximum Likelihood Factor Analyses with Varimax Rotation on a data matrix (n = 91) consisting of various scale scores**

Scales	Factors			
	I	II	III	IV
<b>Bendep-SRQ</b>				
Problematic Use		.72(.74)		
Preoccupation		.33	(.36)	.44
Lack of Compliance		.64(.62)		
<b>SCAN</b>				
ICD-10* (DSM-III-R*) past year BZD dependence	(.30)	.61(.63)		.30
<b>SCL-90</b>				
Anxiety	.82(.79)		(.50)	.43
Agoraphobia	.64(.62)		(.50)	.46
Distrust and Interpersonal Sensitivity	.77(.80)	(.33)	.40	(.34)
Depression	.77(.77)		.34(.36)	
Insufficiency in thinking and acting	.72(.71)	.30(.31)		
Hostility	.74(.71)	.31(.37)		
Sleeping problems	.54(.51)			
Somatization	.74(.72)		(.43)	.38
Remaining items	.80(.85)			
<b>ASI-R problem severity areas</b>				
Physical	.43(.51)		.38	
Professional	.31	.37(.37)	(.46)	.30
Alcohol			(.39)	.38
Drugs		.75(.71)		
Criminal	.34	.68(.72)	.39	(.44)
Social			.64	(.64)
Psychiatric	.45(.54)		.62	(.49)

NOTE. Substitution of the DSM-III-R for the ICD-10 scale yielded the loadings shown between parentheses. Factor loadings of smaller than .3 are not shown

\*Rasch-homogeneous subset of BZD dependence criteria<sup>17</sup>

Test of fit of the 4-factor model:

Using ICD-10: Chi square = 139.06; df = 116; p = .07

Using DSM-III-R: Chi square = 139.86; df = 116; p = .07

'Lack of Compliance', the Rasch homogeneous ICD-10 or DSM-III-R BZD dependence scale and the ASI-R severity scores on drug use and criminal problems were observed on this second factor. It appeared to reflect aspects of dependence, which interfere with the ability to function in, or to behave in accordance with a social environment with clear rules and demands.

The highest loadings of the Bendep-SRQ 'Preoccupation' score and the ASI-R alcohol problem severity score were found on the third (using the ICD-10 scale) or fourth factor (using the DSM-III-R scale), which therefore appeared to reflect an aspect of BZD dependence related to problematic alcohol use. With caution, the highest loadings of the ASI-R severity scores on social and psychiatric problems (only in case of the ICD-10) on the remaining factor, can be considered to provide further support for the discriminant validity of the Bendep-SRQ scales.

## **DISCUSSION**

In many reports, high rates of BZD use have been indicated in patients being treated for alcohol or opiate problems.<sup>4-12</sup> Explanations which have been given for these high rates of BZD use include the replacement of an unavailable primary drug, the enhancement of euphoria from opiates or provocation of euphoria during methadone treatment, the alleviation of withdrawal effects or the combat of sleep disorders which commonly emerge during methadone treatment.<sup>7,9,12,29-33</sup> Owing to these reinforcing factors, alcohol and drug-dependent subjects appear to run a high risk of developing BZD dependence as well. On top of this, Darke et al.<sup>8,10</sup> found that the rate of accompanying BZD use was associated with more

unemployment, imprisonment, prostitution, intravenous drug use, needle-sharing, methadone use, polydrug use and self-reported psychopathology (such as anxiety and depression levels). In patients with severe BZD dependence, selected for inpatient BZD detoxification, it was found that additional psychoactive substance use and mental disorders were prominent.<sup>34</sup> All these findings indicate that concomitant BZD use in alcohol and drug dependent patients should not be ignored.

In spite of this, the diagnostic process and treatment at the Dutch CBACs are still focused primarily on alcohol and illicit drugs. To break with this tradition, the present study paid specific attention to the assessment of BZD dependence in this context of poly-dependence, by applying the DSM-III-R and ICD-10 substance dependence criteria to BZDs, alcohol and the most common illicit drugs. The high prevalence rates of BZD dependence found in the present CBAC outpatient sample, ranging from 59% (past-year DSM-III-R) to 78% (lifetime ICD-10), indicate that BZD dependence should always be taken into account as a possible additional diagnosis in alcohol and drug dependent subjects. This could be done by means of a standard questionnaire with proven psychometric properties.

Aiming for the latter, the ability of the Bendep-SRQ, to reflect the severity of BZD dependence more comprehensively was investigated in this type of patient sample. When the scalability, reliability and validity of the Bendep-SRQ is proved sufficiently, the questionnaire could form a feasible standard method to screen BZD users at CBACs and similar settings.

The scalability of the Bendep-SRQ scales formerly described in general practice patients, psychiatric outpatients and self-help patients,<sup>18</sup> was confirmed in CBAC outpatients using Rasch modelling. This implies that the sumscores of the Bendep-SRQ scales are sufficient statistics of the underlying dimensions, which was required in this study for subsequent reliability and validity assessment.

The reliability results in the CBAC sample were generally good, except for the item discriminability of the 'Problematic Use' scale in the methadone subgroup, which was low and non-significant. The methadone and non-methadone users differed in more respects; the sociodemographic and the diagnostic DSM-III-R and ICD-10 data showed clear differences, generally indicating a poorer level of social functioning and higher (poly-)substance dependence rates in the methadone subgroup. Only alcohol dependence was more frequent in the non-methadone subgroup. Furthermore, the methadone users generally received a supportive type of treatment, while the treatment of non-methadone users was more often problem-oriented. The reliability results of the 'Problematic Use' scale were good with respect to this latter subgroup, in which the drug-related problems were more variable and accessible to problem-oriented treatment. This scale could therefore be useful in a follow-up strategy to monitor the effect of such treatment.

A similar division in the CBAC sample appeared to be meaningful for the interpretation of the results of the factor analyses, which were done to assess the concurrent and discriminant validity of the Bendep-SRQ scales. While the discriminant validity was generally supported, conclusions with respect to the concurrent validity should be made with more caution. On the one hand, 'Problematic Use' and 'Lack of Compliance' appeared to reflect the aspects of dependence which interfere with socially functional behaviour, while on the other hand 'Preoccupation with respect to the availability of BZDs' seemed to reflect a behavioural dimension related to problematic alcohol use; therefore 'Preoccupation' is probably a coping strategy to alleviate alcohol withdrawal symptoms, which is presumably reinforced by the customary medical practice to prescribe BZDs for this purpose. Opiate users will not be preoccupied with the availability of BZDs in such a way, because they are primarily offered methadone maintenance. The assumption that certain characteristics of the alcohol or drug

dependence problem influence the nature of BZD dependence is supported in the literature on the reinforcing effects of alcohol and drug use on concomitant BZD use.<sup>7,9,12,29-33</sup> It seems plausible that such effects between BZD and other types of substance dependence reflect a satisfactory concurrent validity of the Bendep-SRQ scales.

The present findings in the CBAC outpatient sample add further support to the good scalability, reliability and validity results of the Bendep-SRQ scales formerly found in GP patients, psychiatric outpatients and self-help patients who were using BZDs.<sup>18</sup> Although cross-validating research is desirable to support the generalisability of the present findings to similar samples, the Bendep-SRQ already seems to be a feasible instrument in clearly different outpatient settings. The same cannot yet be said for inpatient samples of BZD users, but it seems reasonable to expect that repeating these studies on inpatient samples will yield similar results.

The most important conclusion that can be drawn from the present study is that the Bendep-SRQ appears suitable for practical use in daily outpatient addiction treatment, in order to become aware of the presence and severity of additional BZD dependence. Without sacrificing too much of the effort put into the most apparent (poly)dependence problems, the BZD dependence severity profile (provided by the sumscores of the four Bendep-SRQ scales) could contribute to developing a more differentiated approach to all dependence and dependence-related problems .



## **NOTE**

*The Bendep-SRQ can be obtained from the authors (C. Kan@czzopsy.azn.nl) and is also available for on-line administration on site <http://baserv.uci.kun.nl/~fzitman/Bendep-SRQ.html>.*

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