

Validity and Reliability of the German Version of the Short Understanding of Substance Abuse Scale

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Key Words

Short Understanding of Substance Abuse Scale ·
Verständnis von Störungen durch Substanzkonsum,
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model

Abstract

This paper presents the German version of the Short Understanding of Substance Abuse Scale (SUSS) [Humphreys et al.: Psychol Addict Behav 1996;10:38–44], the Verständnis von Störungen durch Substanzkonsum (VSS), and evaluates its psychometric properties. The VSS assesses clinicians' beliefs about the nature and treatment of substance use disorders, particularly their endorsement of psychosocial and disease orientation. The VSS was administered to 160 treatment staff members at 12 substance use disorder treatment programs in the German-speaking part of Switzerland. Because the confirmatory factor analysis of the VSS did not completely replicate the factorial structure of the SUSS, an exploratory factor analysis was undertaken. This analysis identified two factors: the Psychosocial model factor and a slightly different Disease model factor. The VSS Disease and Psychosocial subscales showed convergent and discriminant validity, as well as sufficient reliability.

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Introduction

Clinicians' beliefs about the nature of substance use disorders have been a significant focus of North American research on addiction treatment. Such beliefs may influence staff members' perception of patients with substance use disorders (e.g., personality traits [1]), ability to use specific intervention techniques (e.g., motivational vs. confrontational interviewing [2]), and likelihood of consenting to particular treatment strategies (e.g., harm reduction [3]). Beliefs are also associated with the characteristics of staff members (e.g., age, education [4]) and of treatment programs (e.g., therapeutic orientation, work environment [5]). How staff members understand the nature of substance use disorders may guide how they approach treatment and prevention, because the practical implications of different etiology models differ greatly [6]. An instrument to assess such beliefs could be used for different purposes, including assessment of treatment integrity (i.e., whether staff members' beliefs are congruent with the treatment program's stated philosophy) and evaluation of patient-therapist beliefs congruence [6, 7]. However, most studies of staff beliefs have been conducted in North America, and therefore may not generalize to other societies. Accordingly, this paper presents the first effort to assess the utility of a widely-used North American treatment beliefs assessment instrument in another society, specifically the German-speaking part of Switzerland.

The *Short Understanding of Substance Abuse Scale* (SUSS) is being used to measure treatment-related beliefs in a number of US research projects [e.g., 8]. Humphreys et al. [7] developed the SUSS as a modification of Moyers and Miller's [1] *Understanding of Alcoholism Scale* (UAS). In their psychometric study with a sample of 170 addiction counselors and therapists, Moyers and Miller [1] identified three subscales: Disease model beliefs reflecting alcoholism as a progressive illness, Psychosocial model beliefs reflecting alcoholism as a maladaptive learned behavior, and Heterogeneity model beliefs reflecting patients with alcoholism as a diverse population.

Humphreys et al. [7] changed the wording of UAS items to make them apply to drugs as well as alcohol, reduced the number of items from 41 to 19, and provided stronger validation information for the instrument. The SUSS subscales assess beliefs in three domains: *Disease model* beliefs reflect the view that alcohol and drug dependence are primary, progressive, and incurable illnesses that can only be arrested by life-long abstinence. Rather than a maladaptive learned behavior, substance dependence is considered as a physical disease caused in part by a hereditary biological vulnerability and neural changes produced by chronic substance abuse. The Disease model approach represents a comprehensive treatment concept that encompasses biological, psychological, social, and spiritual dimensions of substance use disorders. Treatment is essentially based on the methodology of the 12 steps of Alcoholics Anonymous (AA/12-step): education (i.e., self-understanding, skill training, attitudinal change), therapy (i.e., emotional conflicts impeding change, coping with negative emotions), and self-help group (i.e., common motivational effort, support for ongoing change [9]).

Psychosocial model beliefs endorse the view that substance dependence is a learned behavior shaped by the cultural, social and familial background. The Psychosocial model emphasizes the reinforcing properties of substances as central to the acquisition and maintenance of substance use disorders. Based theoretically on learning principles, the Psychosocial model approach encompasses a broad array of interventions, from comprehensive functional analysis of substance use to contingency management and cue exposure to cognitive-behavioral interventions such as modifying dysfunctional cognitions and training of relapse prevention and coping skills [10].

Finally, *Eclectic model* beliefs hold that patients with substance dependence are diverse with respect to biolog-

ical, psychological, and social characteristics. As would be expected, this model does not imply a specific treatment approach but a flexibility attitude about which intervention will work for each patient.

Disease model beliefs and the Psychosocial model beliefs subscales correspond to the two dominant conceptualization of etiology and nature of substance dependence: the Disease model subscale, emphasizing stable physiological factors (e.g., genetic predisposition), and the Psychosocial model subscale, emphasizing social and environmental factors (e.g., social learning processes). The meaning of the Eclectic model subscale, which had less impressive psychometric characteristics in Moyers and Miller's [1] and Humphreys et al.'s [7] studies, is less clear, but it seems to reflect a flexible approach to understanding and treating substance use disorders.

Humphreys et al. [7] presented a psychometric study of the SUSS, in a national survey of 382 US substance use disorder treatment staff (return rate 86%). The reliability of the SUSS was supported by it having internal consistencies with $r = 0.78$ for the Disease model subscale, $r = 0.75$ for Psychosocial model subscale, and $r = 0.61$ for the Eclectic model subscale. Validity was supported by a confirmatory factor analysis, largely replicating Moyers and Miller's [1] initially identified UAS structure. Further, professions differed significantly on their endorsement of each scale. Most notably, psychologists differed from all other professions in their much stronger endorsement of psychosocial beliefs and lower endorsement of disease model beliefs.

The work of the US researchers studying the UAS and SUSS has been helpful in improving measurement of staff members' beliefs about the nature and treatment of substance use disorders. We expand their work by assessing aspects of the validity and reliability of the German version of the SUSS, the *Verständnis von Störungen durch Substanzkonsum* (VSS). In particular, we test whether the factorial structure for the VSS is the same as that of the SUSS. Furthermore, we compare our findings with the results of Humphreys et al. [7] and Moyers and Miller [1] to explore similarities and differences in Swiss and US staff members' understanding of substance use disorders. We hypothesize that Swiss staff members will also make a distinction between the different model beliefs and that validity and reliability indices are similar for the VSS as for the SUSS.

Materials and Methods

Sample

All staff members who had contact with patients ($n = 233$) at 12 inpatient substance use disorder treatment programs in the German-speaking part of Switzerland were asked to participate; 160 (68.7%) staff members agreed. The sample was almost evenly divided by gender (53.1% female, 46.9% male). Respondents averaged 42.2 years of age ($SD = 8.4$ years), 16.7 years of education ($SD = 3.7$ years), 6.6 years of experience in treating patients with substance use disorders ($SD = 5.9$ years), and 15.3 weekly hours of patient contact ($SD = 8.8$ h). Most (71.7%) worked full-time or nearly full-time, with remainder being employed 80% time or less.

Procedure

To ensure a correct translation of the SUSS into German, it was translated from English by a native German-speaking PhD-level psychologist and then back-translated by a native English-speaking PhD-level psychologist. When differences occurred between the original and back-translated English versions, VSS items were revised and adapted accordingly. The response format was the same as used by Moyers and Miller [1] and Humphreys et al. [7], with respondents rating statement reflecting each substance use disorder model from 0 (strongly disagree) to 4 (strongly agree).

Staff members who consented to participate completed a survey that included the VSS, as well as the *Drug and Alcohol Treatment Inventory* (DAPTI [11]), an instrument that assesses programs' emphasis on treatment approaches. Four approaches were measured: (a) *AA/12-step* treatment orientation (Cronbach's $\alpha = 0.81$) that emphasizes goals and activities such as helping patients accept that they are powerless over abused substances and working through the 12 steps; (b) *cognitive-behavioral* treatment orientation (Cronbach's $\alpha = 0.83$) that emphasizes developing confidence in coping with high-risk situations for relapse and on helping patients identify alternative responses to using substances; (c) *therapeutic community* treatment orientation (Cronbach's $\alpha = 0.55$) that emphasizes on accepting personal responsibility for decisions and actions and on assigning patients chores or duties as a part of treatment; (d) *rehabilitation* treatment orientation (Cronbach's $\alpha = 0.73$) that emphasizes on developing better work habits and on acquiring job skills. With one exception, the correlations between the four scales were highly significant, ranging from $r = 0.47$ to $r = 0.59$, $p < 0.001$. Treatment community and rehabilitation orientation were not related to each other ($r = 0.003$, $p > 0.05$). The same procedure as for the SUSS was carried out to translate DAPTI into German.

Results

Validity

Factorial Structure. Following the same procedures as Humphreys et al. [7] and Moyers and Miller [1], we assessed a three-factor structure solution for the VSS, using the confirmatory factor analysis (CFA) provided by the statistical program AMOS 4.01 [12]. CFA is a kind of structural equation modeling (SEM), describing relation-

ships between variables [13]. We used the maximum likelihood estimation (MLE), the most common estimation method for SEM. Based on maximizing the probability or likelihood, MLE makes estimates that the observed covariance matrix is drawn from a population assumed to be the same as that reflected in the coefficient estimates. MLE develops estimates which have the greatest chance of reproducing the observed data. In this study, CFA provides means of determining whether the VSS sample data set is consistent with the predefined factor structure of the SUSS tested by Humphreys et al. [7] in accordance to Moyers and Miller [1]. The structure was tested by fitting the three-factor model in which Psychosocial model items loaded on a Psychosocial factor (loading = 0.6) but not on the other two factors (0.0). The Disease model and the Eclectic model items were modeled to load positively on their own factor (0.6) and weakly negative on each other (-0.3).

The results did not provide support for the hypothesized structure: The goodness-of-fit index (GFI) was 0.781, the adjusted goodness-of-fit index (AGFI) was 0.752, and the root mean square error of approximation (RMSEA) was 0.093. The three indexes indicated that the data did not fit to the three-factor model, given the χ^2 -fit index is significant, χ^2 (168, $n = 157$) = 401.30, $p < 0.01$. The χ^2 -fit index tests whether an unconstrained model fits the covariance matrix as well as the predefined model. If the χ^2 value is significant, the model will be rejected as not being a good fit with the data.

Because the CFA did not confirm the SUSS factorial structure, an exploratory factor analysis (EFA) with α extraction and oblique rotation procedure was calculated provided by the Statistical Program for the Social Sciences, Version 11.0 [14]. The α extraction method is specifically designed to be used in scale construction and testing. It minimizes the estimation of covariance in the correlational matrix to avoid distortion of results on future administrations of the test. Oblique rotation allows for correlation of emerging factors in the correlation matrix. The same procedures were used by Humphreys et al. [7] and Moyers and Miller [1]. Three factors were selected using the scree test [15]. The EFA yielded the Psychosocial model as proposed by Humphreys et al. [7] in the SUSS and the Disease model factor reduced by one SUSS Disease model item and expanded by one SUSS Eclectic model item (table 1). A third factor was only represented by one item reaching the factor loading criteria of ≥ 0.40 . Six items did not meet the loading criteria on any factor. Thus, these items and that item of the third factor were not included in subsequent analyses. The Disease model

Table 1. Mean, standard deviation (SD), item-total correlation (r_{it}), and factor loading for each VSS and SUSS item respectively

Item ^a	Mean	SD	r_{it}	Factor loading
Disease model subscale (range 0–28)	8.42	5.05	–	–
Every alcoholic and addict must accept that he or she is powerless over alcohol and drugs, and can never drink or use again. (D) ^b <i>Jeder Alkoholiker oder Süchtige muss akzeptieren, dass er oder sie hilflos dem Alkohol, den Medikamenten oder den Drogen ausgeliefert ist, und niemals wieder trinken, Medikamente einnehmen oder Drogen konsumieren kann.</i>	1.42	1.14	0.64	0.72
There are only two possibilities for an alcoholic or drug addict – permanent abstinence or death. (D) <i>Es gibt nur zwei Möglichkeiten für einen Alkoholiker oder Süchtigen – dauernde Abstinenz oder den Tod.</i>	0.61	0.91	0.63	0.69
Every alcoholic or addict is one drink or one hit away from a total relapse. (D) <i>Jeder Alkoholiker oder Süchtige ist nur einen Drink, ein Medikament oder einen Schuss vom völligen Rückfall entfernt.</i>	1.20	1.13	0.62	0.64
If an alcoholic or addict is sober or straight for five years, and then starts drinking or using drugs again, he or she is right back where he or she left off in the development of the disease. (D) <i>Wenn ein Alkoholiker oder Süchtiger während fünf Jahren trocken oder sauber gewesen ist und er wieder mit Trinken oder dem Konsum von Medikamenten oder Drogen beginnt, dann ist er wieder dort, wo er durch Abstinenz die Krankheitsentwicklung gestoppt hat.</i>	1.09	1.07	0.51	0.63
If an alcoholic has a drink, or if an addict takes a hit, they lose control and are unable to stop from getting drunk or high. (D) <i>Wenn ein Alkoholiker einen Drink hat, ein Medikamentenabhängiger ein Medikament nimmt oder wenn ein Drogensüchtiger einen Schuss setzt, dann werden sie die Kontrolle verlieren und unfähig sein, nicht betrunken oder high zu werden.</i>	1.00	1.00	0.47	0.62
Once a person is an alcoholic or addict, he or she will always be an alcoholic or an addict. (D) <i>Ist eine Person einmal Alkoholiker oder süchtig, wird er/sie es immer bleiben.</i>	1.87	1.29	0.43	0.45
Usually if alcoholics and addicts fail to recover in AA/NA or in treatment, it is because they are unmotivated and in denial. (E) <i>Wenn sich Alkoholiker oder Süchtige trotz Behandlung oder Teilnahme an einer Selbsthilfegruppe nicht verbessern, liegt das gewöhnlich daran, dass sie unmotiviert sind und ihr Problem verleugnen.</i>	1.22	1.00	0.38	0.42
Psychosocial model subscale (range 0–20)	12.25	3.60	–	–
A person's environment plays an important role in determining whether he or she develops alcoholism or drug addiction. (P) <i>Die persönliche Umwelt spielt eine wichtige Rolle, ob eine Person Alkoholismus oder eine Sucht entwickelt.</i>	2.78	0.93	0.65	0.74
Alcoholism and drug addiction are caused, in part, by growing up in a dysfunctional family. (P) <i>Alkoholismus und Sucht sind zum Teil durch das Aufwachsen in einer nicht funktionierenden Familie verursacht.</i>	2.09	0.98	0.61	0.70
Alcoholism and drug addiction are caused, in part, by what one learns about alcohol and drugs and the drinking/drug use patterns of one's family and friends. (P) <i>Alkoholismus oder Sucht sind zum Teil dadurch verursacht, was eine Person über Alkohol, Medikamente und Drogen lernt und wie damit in der Familie und im Freundeskreis umgegangen wird.</i>	2.27	1.07	0.55	0.66
The society or culture in which one grows up has a significant influence on whether or not one becomes an alcoholic or addict. (P) <i>Die Gesellschaft oder Kultur, in der jemand aufwächst, hat einen bedeutenden Einfluss, ob jemand ein Alkoholiker oder ein Süchtiger wird.</i>	2.18	1.04	0.46	0.56
A person can develop alcoholism or drug addiction because of underlying psychological problems. (P) <i>Menschen können aufgrund psychologischer Probleme Alkoholismus oder eine Sucht entwickeln.</i>	2.92	0.97	0.45	0.57
Items not reaching factor loading criterion of >0.40	–	–	–	–
People can be born addicts or alcoholics. (D) <i>Es gibt Leute, die sind als Alkoholiker oder Süchtige geboren.</i>	0.39	0.69	–	–
Denial is part of the personality of the alcoholic or drug addict. (E) <i>Verleugnung ist Teil der Persönlichkeit von Alkohol-, Medikamenten- oder Drogensüchtigen.</i>	2.22	1.17	–	–
There are 'problem drinkers' who have significant problems with alcohol, but who are not alcoholic. (E) <i>Es gibt «Problemtrinker», die mit Alkohol bedeutende Probleme haben, aber keine Alkoholiker sind.</i>	1.45	1.24	–	–
Alcoholics and drug addicts have a distinct set of personality traits by which they can be identified. (E) <i>Alkoholiker und Süchtige weisen typische Persönlichkeitsmerkmale auf, an denen man sie erkennen kann.</i>	1.26	1.00	–	–
Alcoholics and drug addicts who are forced into treatment do just as well as those who come into treatment on their own. (E) <i>Alkoholiker oder Süchtige, die gezwungen werden, eine Behandlung zu absolvieren, verbessern sich genau so gut wie diejenigen, die freiwillig eine Behandlung machen.</i>	0.99	0.95	–	–
Except for detoxification, alcoholics and addicts should never be given psychiatric medication such as anti-depressants, lithium, or anti-anxiety drugs. (E) <i>Ausser während der Entgiftung sollte Alkoholikern oder Süchtigen niemals Psychopharmaka gegeben werden wie Antidepressiva, Lithium oder Anxiolytika.</i>	0.47	0.86	–	–
If an alcoholic or addict isn't motivated, there is not much you can do to help him or her. ^c (E) <i>Wenn ein Alkoholiker oder ein Süchtiger nicht motiviert ist, gibt es nicht viel, was man tun könnte, um ihm/ihr zu helfen.</i>	2.11	1.19	–	–

VSS = Verständnis von Störungen durch Substanzkonsum; SUSS = Short Understanding of Substance Abuse Scale (from Humphreys et al. [7], with permission).

^a English version of items in the SUSS and their German version in the VSS.

^b The letter in parentheses indicates on which factor the VSS item loaded in the SUSS; D = Disease model, P = Psychosocial model, E = Eclectic model.

^c Only item representing the third factor that was not used for subsequent analyses (factor loading = –0.43).

factor had an eigenvalue of 3.6 and the Psychosocial model factor 2.2. In table 1, each item, mean, standard deviation, factor loading, and item-total correlation are presented. The Kolmogorov-Smirnov test revealed that the distributions of the two scales are normal (Disease model scale: $z = 1.31$, $p > 0.05$; Psychosocial model scale: $z = 1.17$, $p > 0.05$). The correlation between the two scales was not significant, $r = 0.13$, $p > 0.05$.

Convergent Validity. Humphreys et al. [7] found differences in SUSS scale scores for different staff disciplines (e.g., psychiatry, psychology) and different educational levels, supporting the assumption that type and amount of professional training relate to beliefs about substance use disorders and their treatment. Accordingly, we compared four common occupations: medical doctors ($n = 23$), psychologists ($n = 36$), counselors ($n = 70$), and nurses ($n = 31$). Data from individuals in less common positions (e.g., chaplains, work study students, secretaries) are not included here so as to optimize clinical relevance and maximize statistical power. A univariate analyses of variance showed significant differences across occupations for the Psychosocial model subscales, $F(3, 149) = 3.13$, $p < 0.05$. Tukey's honestly significant differences procedure was used to conduct multiple comparisons among *staff disciplines*. The only significant difference was that psychologists significantly scored higher ($M = 13.27$) than nurses ($M = 10.61$) on the Psychosocial model subscale, $p < 0.05$.

Using weighted Pearson correlation analyses to control differences in sample sizes of occupational groups, subscale scores were correlated with *years of education* and *years of experience*. Psychosocial model beliefs were positively ($r = 0.30$, $p < 0.01$) related to higher levels of education and were negatively related to years of experience ($r = -0.23$, $p < 0.01$).

VSS scores were also correlated with coworkers' ratings of *treatment goals and activities*, as measured by two DAPTI scales (i.e., AA/12-step and cognitive-behavioral goals and activities). For each respondent, a score indicating the degree to which AA/12-step and cognitive-behavioral goals and activities were emphasized in his or her program, was generated by averaging scores on these scales for all study participants who worked in the same program. Disease model beliefs were more strongly endorsed by staff working in treatment programs which emphasized AA/12-step goals and activities ($r = 0.27$, $p < 0.01$). No significant correlation was found between the Psychosocial model subscale and working in treatment programs that emphasized cognitive-behavioral goals and activities. In addition, Disease model beliefs were

Table 2. Comparison of the internal consistency of the SUSS and VSS

VSS subscale	SUSS α	VSS α
Disease model	0.78	0.79
Psychosocial model	0.77	0.77

SUSS = Short Understanding of Substance Abuse Scale; VSS = Verständnis von Störungen durch Substanzkonsum.

positively associated with *posttreatment goals* such as abstinence from alcohol ($r = 0.24$, $p < 0.01$), from not prescribed medication ($r = 0.22$, $p < 0.01$), from cannabis ($r = 0.22$, $p < 0.01$), and from other illegal drugs (e.g., heroin, cocaine; $r = 0.22$, $p < 0.01$) and negatively associated with controlled drinking ($r = -0.31$, $p < 0.01$). For these goals, no significant correlations were found with Psychosocial model beliefs.

Discriminant Validity. To assess the discriminant validity, two other DAPTI subscales were used to measure program aspects which are not supposed to be associated with the Disease model or Psychosocial model beliefs. For these two subscales, therapeutic community orientation (e.g., assigning chores and duties as a part of treatment) and rehabilitation orientation (e.g. developing better work habits and job skills), a program-specific score was generated with the same procedure as for the AA/12-step and cognitive-behavioral goals and activities scales. Neither Disease model beliefs nor Psychosocial beliefs were related to programs' therapeutic community or rehabilitation orientation, yielding nonsignificant correlations of $r = -0.05$ and $r = 0.14$ respectively, $p > 0.05$.

Reliability

We computed internal consistency reliability estimates for the VSS Disease model and the Psychosocial model subscales and compared them with those of the SUSS reported by Humphreys et al. [7]. The internal consistencies of the VSS Disease model and the Psychosocial model were equal in size to their SUSS counterparts (table 2).

Discussion

In this study, we expanded on the contribution of Moyers and Miller [1] and Humphreys et al. [7] by investigating the validity and reliability of a German language mea-

sure of staff beliefs about substance use disorders, the VSS, and comparing the results with those of the SUSS. Like US counterparts, Swiss staff members of substance use disorder treatment programs make a clear distinction between the two dominant conceptualizations of substance dependence, the Disease model and the Psychosocial model.

However, the three-factor structure of the UAS specified by Moyers and Miller [1] and of the SUSS specified by Humphreys et al. [7] did not have adequate fit in the current Swiss data set using CFA. Thus, the SUSS developed in the USA may not be applied as it is in Switzerland. Swiss professionals might emphasize different aspects of etiology of substance dependence that were not included in the VSS. More items should be added to obtain more comprehensive scales and tested in further research on the development of the VSS. Nevertheless, our EFA revealed a concurrent Psychosocial model factor and just a slightly different Disease model factor. That item assigned to the SUSS Eclectic model subscale originally was a UAS Disease model item in the article of Moyers and Miller [1], and so it proved to be for the VSS. Thus, we can at least have some confidence in the *construct validity* of these two VSS subscales.

No Eclectic model factor was found in the Swiss data set. This is less suggestive of a cultural difference than it might at first appear, because the validity and reliability of the Eclectic model factor was not highly persuasive as in the work of Moyers and Miller and Humphrey et al., leading these research groups to recommend further assessment of the Eclectic model scale rather than its unquestioned application in new contexts. Humphreys et al. [7] argued that the Eclectic model subscale taps a general style of approaching treatment more than a specific and consistent theoretical model per se like the Disease and the Psychosocial model subscales. Further studies might include more specific items that represent patients' heterogeneity and staffs' treatment eclecticism. In some studies, it may also be preferable simply to drop the Eclectic model scale and focus instead on the two scales with strong psychometric characteristics.

The *convergent validity* of the two VSS scales was moderately supported by their relating to variables with which valid measures of staff beliefs should vary (e.g., education, treatment goals and activities). For example, the analysis of the VSS scores across *occupations* was intended to provide support for the instrument's validity. As expected from the previous US study of Humphreys et al. [7], Disease model beliefs were similarly endorsed by staff members across occupations, demonstrating the

prevalence of the Disease model in substance use disorder treatment programs in the German-speaking part of Switzerland. Psychologists also showed higher endorsement of Psychosocial model beliefs than nurses. Unlike in the US study, no difference was found between psychologists and psychiatrists/physicians, suggesting that both groups adhere similarly to the Psychosocial model. Because half of the medical doctors were psychiatrists, they encountered psychosocial concepts in their professional training and may be familiar with them. Consistently, more *years of education* were associated with stronger Psychosocial model beliefs in the Swiss and the US samples, reflecting longer and more intensive professional training in this model for medical doctors and psychologists than for counselors and nurses.

In the Swiss sample, fewer *years of experience* working in the substance use disorder treatment field was associated with stronger Psychosocial model beliefs. Early in their career as addiction treatment professionals, clinicians seem more likely to believe that substance use disorders are caused by psychosocial conditions and learned behavior and can be treated accordingly. Perhaps with repeated experience with patient relapses and re-hospitalizations, staff members give less credence to the Psychosocial model. A non-competing explanation is that psychosocial learning models have become more influential in recent decades, and more recent graduates of training programs have been exposed to them more extensively than have individuals whose training occurred at an earlier time.

A further index of convergent validity is the relationship between staff beliefs and *treatment goals and activities*. The Disease model beliefs scale was positively related to AA/12-step goals and activities including post-treatment goals of abstinence instead of controlled substance use. This result confirms the traditionally strong relationship between Disease model and AA/12-step treatment orientation [9]. In both the USA and Switzerland, strong Disease model beliefs result in concordant treatment goals and activities.

In contrast to the work of Humphreys et al. [7], there was a positive association between Disease model and cognitive-behavioral treatment orientation. This suggests greater integration of cognitive-behavioral and AA/12-step interventions in Swiss than in US substance use disorder treatment programs.

Psychosocial model disease beliefs were not related to cognitive-behavioral goals and activities. Staff members' personal understanding of substance use disorders may differ from their programs' goals and activities, suggest-

ing possible difficulties in realizing optimal treatment implementation and integrity. However, while the items of the Disease model subscale describe rather specific concepts and behavior of substance dependence, the items of the Psychosocial model subscale describe more general and abstract learning principles. The latter might be more difficult to associate with specific treatment goals and activities. In a further step of development of the scale, the items of the Psychosocial model subscale might be reformulated to tap more specific concepts.

Support of *discriminant validity* is provided by the finding that Disease model and Psychosocial model beliefs are not related with two DAPTI treatment orientation measures. Treatment community orientation and rehabilitation orientation are sensibly not related to the two dominant conceptualization of substance dependence. Interventions such as accepting responsibility for decisions and action, assigning chores and duties to the patient, or developing better work habits and job skills are more general aspects of specific treatments than a part of understanding of substance use disorders.

In terms of *reliability*, the two VSS subscales' internal consistencies were satisfactory and similar to their SUSS counterparts in the US study [7]. Interestingly, the VSS Disease model subscale differs from the corresponding SUSS subscale by two items. This change may reflect a peculiarity of beliefs of Swiss staff members who evaluate patients' motivation for treatment higher than possible hereditary biological vulnerability to substance dependence.

Two cautions should be noted. First, the scale construction process is not finished. The CFA did not support the factorial structure of the Swiss version of the SUSS. Despite some positive results of the EFA, further evaluation of the psychometric properties of the VSS may be warranted because some of the statistical indices supporting the validity and reliability in this study, though statistically significant, were of small magnitude. These results suggest that the Swiss professionals emphasize different aspects of the nature of substance dependence. Thus, the scales should be expanded by additional items that include such aspects and that can be tested for scale construction purposes. Second, Swiss staff members make a clear distinction between the Disease and Psychosocial model as in the USA. However, our results suggest a more integrative treatment approach in Swiss substance use disorder programs than in US programs. Thus, more adherence to one of the two dominant conceptualizations of the *nature* of substance use disorders does not necessarily need to be associated with the theoretically corre-

sponding *treatment* of substance dependence. At least in the German-speaking part of Switzerland, the emphasis seems to be on the integration of AA/12-step and cognitive-behavioral interventions in one program.

As Humphreys et al. [7] mentioned for the SUSS and as we elaborated in our introduction, there are many potential applications of a measure of staff beliefs. One application on which we expect to soon have data is whether patients change their beliefs during treatment in ways consistent with different treatment philosophies (e.g., AA/12-step vs. cognitive-behavioral treatment). Specifically, we are finishing a Swiss multisite study, in which 664 patients in a 3-month inpatient program for substance use disorders completed the VSS at admission and discharge [16]. If we can demonstrate specific changes during treatment in patients' understanding of nature of substance use disorders depending on programs' viewpoints of substance use disorder, it would suggest the VSS can be a useful monitor of treatment progress on proximal outcomes that may translate into longer term remission of substance abuse.

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