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Factor Analysis of the Alcohol and Drug Confrontation Scale (ADCS)

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Abstract

The Alcohol and Drug Confrontation Scale (ADCS) is a 72-item instrument that defines confrontation as an individual being told “bad things” might happen if they do not make changes to address alcohol or drug problems or maintain sobriety. Preliminary assessment of the ADCS using substance abusers entering SLH's revealed: 1) Scale items were frequently endorsed; 2) Confrontation was often experienced as accurate and helpful; and 3) Confronters' statements were viewed supportive and accurate. This study reports the results of a factor analysis on a larger sample 179 participants using baseline and 6 month follow-up data. Results yielded a clear two factor solution: 1) Internal Support ($\alpha = 0.80$) and 2) External Intensity ($\alpha = 0.63$). The two factors accounted for 58% of the variance. The ADCS offers a fresh and broader view of confrontation that can be reliably measured.

Keywords

Confrontation; Factor Analysis; Addiction Treatment; Social Support

The effect of confrontation in addiction treatment is one of the most debated topics among addiction professionals, despite the lack of a clear way to measure it (Polcin, 2003). Historically, confrontation has been described as a general style of counseling where the therapist argues with the client in an attempt to convince them that they have a problem with alcohol or drugs (Miller, Benefield & Tonigan, 1993). These approaches have been shown to be counter-therapeutic.

On the other hand, some types of interpersonal pressure regarding substance use have been shown to have a beneficial impact. Suggestions to enter treatment from friends, family, or a variety of human services and criminal justice professionals are common precipitants of treatment entry (e.g. George and Tucker, 1996; Polcin & Weisner, 1999; Weisner, Matzger, Tam & Schmidt, 2002).

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One problem in this area of study is that various types of pressures that clients receive have not been well defined and studies use different definitions of pressure and confrontation. The Alcohol and Drug Confrontation Scale (ADCS) (Polcin, Galloway & Greenfield, 2006) offers a fresh view of confrontation specifically defined as the extent to which individuals are told that they face potential consequences (i.e. “bad things”) if they do not make changes to address alcohol or drug problems or make changes to maintain sobriety.

The current state of research on pressure suffers from a number of other shortcomings. First, most studies do not assess the effects of pressure from multiple sources. They tend to pick one or two sources (e.g. criminal justice system or family/friends). Second, pressure is often conceived as a dichotomous variable, being present or absent in any individual case. This approach neglects important factors such as frequency and quantity of pressure. Third, existing studies do not assess the individual's experience of the pressure they receive. To what extent does the client view the confrontation as helpful or accurate? To what extent does the client view the confronter as supportive in general and supportive of sobriety in particular? What attributions does the client make about the motivations of the confronter?

The Alcohol and Drug Confrontation Scale (ADCS)

The ADCS includes 64 items assessing confrontation that participants received from 8 different sources during the past month: spouse/significant other, family, friends, sober housing residents, healthcare professionals, mental health professionals, substance abuse professionals, and criminal justice professionals (Polcin et al, 2006). Within each source of confrontation 5 domains assess different dimensions of confrontation received during the past month: 1) the number of different sources that include at least one person confronting the respondent, 2) the total number of people confronting the respondent across all 8 sources of confrontation, 3) the frequency of confrontation within each source rated on a 5-point Likert scale, 4) perceptions of relationships with confronters rated on three 5-point Likert scale items, and 5) perception of confrontation rated on three 5-point Likert scale items. For a more complete description of the instrument including the content or the items in each domain see Polcin, et al (2006).

The initial testing of the ADCS on a sample of 108 participants entering sober living houses (SLH's) in California indicated that confrontation was common and generally experienced as supportive (Polcin, et al., 2006). Additionally, more frequent confrontation from more individuals and more sources was associated with more favorable views about relationships with confronters ($p < .001$) and more favorable views about the confrontations received ($p < .001$).

The next step in instrument development was to conduct a factor analysis of the ADCS. The principle aim of this study is to report the factor structure of the ADCS, which has been specifically designed to address the aforementioned limitations in the pressure literature.

Methods

One hundred and seventy-nine participants were recruited into a study of SLH's. As described elsewhere (i.e. Polcin, 2001, p. 301), “SLH's are alcohol and drug free residences for individuals attempting to establish or maintain sobriety. They offer no formal treatment services but do provide social support and an abstinent living environment.” Residents are required to attend 12-step self-help meetings and take responsibility for their share of the rent and maintenance of the house. The data collection sites were 21 SLH's in Northern California overseen by two different agencies.

A majority of the 179 participants were men (83%) and white (65%). Most had never been married (51%) and DSM-IV criteria for dependence was most prevalent for alcohol (47%)

followed by methamphetamine (45%) and cocaine (42%). The mean age was 37 and ranged from 18 – 71.

Procedures

Research assistants interviewed 179 participants during their first week of entering a sober living house. All participants signed informed consent documents prior to research interviews and were assured their responses were kept confidential. To strengthen confidentiality further, a Federal Certificate of Confidentiality was obtained. Of the 179 interviewed at baseline, 75 were interviewed a second time at 6 month follow up. Thus, a total of 254 interviews underlie this analysis. Observations where zero sources of confrontation were reported were not used in the analysis. Among the total of 254 interviews, 47 included reports of no confrontation. Thus, 207 interviews were the basis for the combined factor analysis.

Administration of the ADCS began by informing participants that they were going to be asked if people “have said that bad things might happen to you if you do not make changes to address a drug or alcohol problem or make changes to maintain sobriety.” Examples of bad things were stated to be relapse, eviction, jail, loss of job, losing an important relationship, becoming homeless, health problems, or emotional problems. Participants were asked to report whether they had experienced such confrontations during the past month. The sequence of 8 questions was repeated for each of the 8 sources and is presented in Table 1.

Data Analysis

Because we had a limited number of individuals for factor analysis of a 64 item instrument, we opted to use procedures described by Greenfield and Attkisson (2004), which examined factor analysis of items within and across different contexts. In our analysis, we separately assessed the factor structure of the 8 items within each of the 8 sources and in a combined factor analysis we analyzed data from all sources together. Principal components methods were used with varimax rotation. SAS/STAT 9 was the statistical software used to conduct the analysis.

The sample size for the combined analysis across the 8 sources included 554 observations, which is beyond the minimum ratio of 5 observations per item suggested by Gorsuch (1983). Six of the 8 factor analyses within sources contained a sufficient number of observations (>40). Health and mental health had lower N's (31 and 22 respectively), indicating the findings for these sources are potentially unstable. However, as reported in the Results section, we found remarkably consistent findings across sources.

The lack of independence of observations for some individuals interviewed at baseline and at 6 month follow up was not viewed as problematic because no inferential statistics were involved. We made the assumption that the correlations of individuals' responses at baseline and 6-months were the same as correlations between different individuals at baseline.

Results

Descriptive statistics including means and standard deviations for all 8 items across all sources of confrontation are presented in Table 2. As in our first analysis of the ADCQ (Polcin, et al., 2006), there was little variation of means across sources. Regardless of the source, perceptions of confronters and confrontational statements were consistently viewed as positive. Respondents also tended to indicate that they felt confronters were supportive and confrontations were accurate and helpful.

Principal components analysis in all instances (both source specific and overall) yielded two factors based on the Kaiser criterion of eigenvalues >1.0 . The two retained factors included 4 items each and explained 58% of the variance in the combined analysis.

Factor 1 has been labeled “Internal Support” because all items deal with the internal perception of supportiveness/helpfulness of the confrontation. Internal Support for the combined analysis included items 3, 4, 5, and 8, with factor loads ranging from .63 (item 8) to .87 (item 4). In Table 3 X denotes a load greater than 0.50. We see that six sources have exactly the same pattern and two others add one more variable to this subset. This factor accounted for 40% of the variance.

The second factor is the complement of the first factor as would be expected with a varimax rotation. The factor loading pattern for the second factor across the eight individual analyses was again very consistent and is shown in table 4. Factor 2 for the combined analysis included items 1, 2, 6, and 7, with factor loads ranging from .51 to .76. The items in Factor 2 address the quantity, frequency, accuracy and emotional tone of confrontation. We are labeling this factor, “External Intensity,” because the items address amount or quality of the confrontation presented to the participant from outside sources. This factor accounted for 18% of the variance.

Each of the combined 8-item factor based scales showed acceptable internal consistency: Cronbach's alpha = 0.80 for Internal Support and 0.63 for External Intensity. Internal consistency of scales within individual sources was more variable. While Internal Support ranged from 0.71 (Family) to 0.88 (Criminal Justice), External Intensity was lower, ranging from 0.30 (a 2 item Criminal Justice scale) to 0.68 for Criminal Justice. Those sources with alphas $<.60$ (Criminal Justice, Healthcare Professionals, and Family) suggest that their use independent of the overall scale may not be warranted. Alphas for each source can be found in Tables 3 and 4. The two overall scales are highly correlated, 0.73 ($p<.001$) at baseline and 0.86 ($p<.001$) at 6-month follow up.

Discussion

In this sample of residents in SLH's, the ADCS appears to have a clear factor structure and the factor based scales have acceptable psychometric properties in terms of internal consistency. Item means on the 2 scales of the ADCS (External Intensity and Internal Support) indicate that the intensity and supportiveness of confrontations were experienced surprisingly consistent across different sources. In addition, factor loadings of items were high and consistent across sources. Although the two-factor solution was supported, the two factors were highly correlated. Thus, the two dimensions measure related constructs. In addition, mean values of the items indicate that the intensity and supportiveness of confrontation were experienced in a consistent manner across different sources. Findings indicate that confrontation for SLH residents, defined as an individual being told they face potential harm unless they take action to address substance use problems, is common and usually experienced as supportive.

Our findings may differ from previous investigations of confrontation (e.g. Miller, Benefield & Tonigan, 1993; Miller et al, 1995) for a number of reasons. First our definition of confrontation is substantially different. Rather than a general style of argumentative counseling focused on breaking down denial, our definition focuses on feedback about specific types of harm that those being confronted might suffer. Thus, the experience of being confronted switches from defending oneself from accusations to examining statements of concern. Another major difference with previous investigations of confrontation is the assessment of multiple domains of confrontation. The multifaceted nature of the ADCS allows for measurement of the respondents' experiences of the confrontational interactions and views about their perceptions of confronters. Finally, our study examined confrontation from multiple

sources, not simply from substance abuse counselors. Here, experiences of confrontation from different sources appeared similar, but this might not always be so. For example, they might differ by population characteristics, treatment setting, or time when the confrontation is received.

Developing measures of construct and predictive validity as well as test-retest reliability will be the next steps in development of the ADCS. A limitation of our study that must be addressed in future research is the lack of information about longitudinal changes of confrontation over time. It would be particularly useful to track outcome correlates with confrontation, such as motivation, consumption of substances, and problem severity.

We hypothesize that confrontation may have a beneficial impact because it frequently provides realistic feedback about potential harm associated with addiction. Hence, it might be experienced as a form of social support rather than criticism. Results suggest that addiction treatment providers, friends, family, and professionals encountering substance abusers in other institutions should look for opportunities to provide supportive confrontation focused on potential harm clients might suffer from substance use.

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Table 1
Format of Items within Sources

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- 1.) How many (source) said that bad things would happen to you if you did not make changes to address drug or alcohol problems or if you did not make changes to maintain your sobriety?
 - 2.) How often did your (source) say that bad things would happen to you if you did not make changes?
 - 3.) Thinking about the (source) that said bad things would happen if you did not make changes, how supportive of your sobriety are they?
 - 4.) Overall, how supportive (is that/are those) (source) of you?
 - 5.) How much do you think your (source) were trying to help you when they said that bad things would happen to you if you did not make changes?
 - 6.) When your (source) said that bad things could happen, how accurate do you believe the statements were?
 - 7.) How emotional did your (source) seem when they said that bad things would happen if you did not make changes?
 - 8.) Thinking about the things (source) said to you, how helpful to your recovery were the statements?
-

Table 2
Means and Standard Deviations for Items in the Combined Factor Analysis (N=207)

Item	Factor 1	Factor 2
1		0.90 (0.73)
2		3.01 (1.11)
3	4.44 (0.73)	
4	4.31 (0.77)	
5	4.24 (0.80)	
6		4.31 (0.84)
7		3.39 (0.93)
8	4.10 (0.80)	

Note: KMO test for sample adequacy = 0.75, Bartlett test for sphericity yielded chi square =525.1, 28 df, $p < .001$). SPSS 12 statistical software.

Table 3

Factor Loadings for Internal Support (Factor 1)

Item	Spouse	Family	Friends	SLH Peer	Hlth Prof.	Mental Health	Subst. Treat.	Criminal Justice	Combined
N:	53	148	100	62	31	22	84	45	554
1									
2									
3	X	X	X	X	X	X	X	X	0.85
4	X	X	X	X	X	X	X	X	0.87
5	X	X	X	X	X	X	X	X	0.73
6								X	
7					X				
8	X	X	X	X	X	X	X	X	0.63
alpha	0.84	0.71	0.80	0.78	0.87	0.82	0.81	0.88	0.80

Note: X denotes a loading of 0.50 or higher

Table 4

Factor Loadings for External Intensity Factor (Factor 2)

Item	Spouse	Family	Friends	SLH Peer	Hlth Prof.	Mental Health	Subst. Treat.	Criminal Justice	Combined
N:	53	148	100	62	31	22	84	45	554
1		X	X	X	X	X	X		0.70
2	X	X	X	X	X	X	X	X	0.76
3									
4									
5									
6	X		X		X	X	X		0.51
7	X	X	X	X		X	X	X	0.61
8									
alpha	0.61	0.54	0.63	0.68	0.57	0.63	0.65	0.30	0.63

Note: X denotes a loading of 0.50 or higher