

## Assessment of the psychometric properties of the Adaptive Behavior Scale with psychiatric patients.

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### **Abstract:**

This study explored the psychometric properties of the Adaptive Behavior Scale (ABS) using a sample of institutionalized, mentally disturbed adults. 188 clients on extended-care wards of a state-operated inpatient psychiatric facility were assessed with the ABS. An exploratory orthogonal principal-components analysis found three underlying factors: Independent Functioning, Interpersonal Maladaptation, and Intrapersonal Maladaptation. Evidence for the construct validity of the ABS with psychiatric patients was provided by analyses showing that older clients, those who had been currently hospitalized for longer amounts of time, and those with organic or schizophrenic disorders had lower levels of adaptive functioning than did their counterparts. The findings suggest that the ABS may be appropriately used with psychiatric patients. Suggestions for revising the ABS are made, and implications for the clinical use of the instrument are discussed.

**Keywords:** psychology | Adaptive Behavior Scale | mental disorders | emotional adjustment | social adjustment

### **Article:**

As a number of researchers have noted ( Felton & Shinn, 1981; Goldman, Adams, & Taube, 1983), deinstitutionalization has been less than optimally effective in improving long-term outcome for many psychiatric patients. One factor associated with the poor outcome of many discharged psychiatric patients is their lack of self-management and social skills, with numerous studies demonstrating that the absence of basic living skills is related to higher recidivism rates ( Anthony, Cohen, & Vitalo, 1978). Furthermore, Anthony, Cohen, and Cohen (1984) concluded

that virtually all of the studies that have demonstrated positive rehabilitative outcomes among psychiatric patients have included skills training as a treatment component.

Therefore, the effectiveness of treatment programs for psychiatric patients depends on assessment procedures that are capable of identifying skill deficits and strengths. Paul (1984) suggested that observational techniques that are amenable to continuous assessment are more desirable than traditional diagnostic procedures with chronic psychiatric patients. Unfortunately, few such techniques are available (Anthony et al., 1984; Paul, 1984). One instrument that has shown promise is the Adaptive Behavior Scale (ABS: Nihira, Foster, Shellhaas, & Leland, 1974).

The ABS is a 110-item behavior rating scale. Part I of the ABS contains 66 items that cover 10 behavioral domains measuring daily living skills, and Part II contains 14 domains (44 items) that assess maladaptive behaviors (see Table 1 for a complete listing of the domains; see the Results section for selected sample items). Although the ABS was developed primarily for use with institutionalized mentally retarded, emotionally maladjusted, and developmentally disabled individuals, it has also been used with chronic psychiatric patients (Foster & Nihira, 1969; Sylph, Ross, & Kedward, 1977).

**Table 1 has been omitted from this formatted document.**

The psychometric properties of the ABS have almost exclusively been established on mentally retarded populations. In his study of 919 institutionalized mentally retarded adults, Nihira (1969a) found three factors underlying an earlier version of the instrument: Personal Independence, consisting of those skills required to maintain an independent living style (loading highly on all of the Part I domains); Social Maladaptation, consisting of a variety of antisocial behaviors assessed in Part II of the instrument; and Intramaladaptation, consisting of domains measuring self-deprecative and intrapunitive behaviors. An almost identical factor structure was derived from a similar analysis of ABS protocols using children and adolescents (Nihira, 1969b). Although this study focuses on institutionalized individuals, more recent factor analyses with mentally retarded community populations (Guarnaccia, 1976; Lambert & Nicoll, 1976) have found similar factor structures.

Spreat (1982) reported that test—retest reliabilities for Part I domains ranged from .85 to .97 (M = .91) and for Part II domains ranged from .60 to .97 (M = .83). Interrater reliabilities on Part I domains ranged from .71 to .93 (M = .86) and on Part II domains ranged from .37 to .77 (M = .57). The lower Part II reliabilities may be attributed to fewer items on Part II domains compared with those on Part I domains (see Table 1).

With respect to validity, Foster and Nihira (1969) used the ABS to discriminate between low- and high-functioning institutionalized retarded individuals who were classified into three diagnostic categories: behavior reaction, psychotic reaction, and nonimpaired. Low-functioning persons with psychotic reactions scored higher on the Stereotyped Behavior domain than did

persons in the low-functioning nonimpaired group. In addition, the members of the low-functioning behavior reaction group scored higher than the nonimpaired group on six Part II scales. Eyman and Call (1977) found that the profoundly mentally retarded experienced more behavior problems as assessed by the ABS than did the mildly retarded. In addition, physical violence and self-abusive behavior were reported to occur more frequently in institutions than in community arrangements.

This study examined whether the ABS is an appropriate instrument for assessing the adaptive behavior skills of institutionalized psychiatric patients. An exploratory principal-components analysis was conducted to identify the constructs underlying adaptive behavior among psychiatric patients. In addition, to establish construct validity, a number of predicted subgroup differences were examined. We projected that the construct validity of the ABS would be supported if older clients (see Angelini, 1982), "organic" or schizophrenic clients (see Sylph et al., 1977), and clients who had been institutionalized for longer periods of time (Becker & Bayer, 1975) had lower levels of adaptive functioning (as measured by the ABS) when compared with their younger, dual-diagnosis or affective-disordered, and more briefly hospitalized counterparts.

## Method

The investigation was conducted at the Dayton Mental Health Center, a state-operated inpatient psychiatric facility. One-hundred-eighty-eight clients (156 White, 32 Black; 106 men, 82 women) on the extended-care wards were assessed with the ABS by nurses trained in the administration of the instrument. The assessments were conducted after patients had been on the wards at least 4 weeks, which allowed the staff sufficient time to observe and to accurately rate patients' behavior. Diagnoses of the clients, which were made by either psychiatrists or psychologists, were based on (a) unstructured clinical interviews; (b) observations of ward behavior; and (c) psychological testing (in selected cases that required additional data). For those clients who were hospitalized for more than 1 year, diagnoses were based on their most recent annual evaluations. No assessment was made of the reliability of the diagnostic process. Diagnoses included schizophrenic (n = 131), affective (n = 17), organic (n = 27), and dual-diagnosis (n = 13) disorders. Those in the last category were simultaneously diagnosed as both mentally disturbed and mentally retarded. The clients ranged in age from 18 to 92 years (M = 45.8).

## Results

### Exploratory Principal-Components Analysis

The results of the principal-components analysis are presented in Table 1. Eigenvalues for the first 10 factors were 6.70, 5.29, 1.46, 1.22, 1.08, 1.05, .99, .81, .70, and .58. A scree test suggested that three factors be retained. These factors were then rotated with both orthogonal and oblique (oblimin) rotations. Because the interfactor correlations were small (range = -.04-.29, M

= .14), a varimax (orthogonal) rotation was chosen for the final analysis to simplify the factor structure. Interpretation of the factors rests on factor loadings of .40 or greater.

The largest factor, accounting for 27% of the total variance, was labeled Independent Functioning. All of the Part I domains loaded on this factor, and there was a negative loading on the Withdrawal domain in Part II. Some sample items on this factor included “use of table utensils” (Independent Functioning domain), “money handling” (Economic Activity domain), “laundry” (Domestic Activity domain), “persistence” (Self-Direction domain), and “shyness” (Withdrawal domain).

The second factor, Interpersonal Maladaptation, accounted for 19% of the total variance. This factor included nine Part II domains measuring disruptive and harmful behaviors as well as global psychological disturbance. Sample items from domains loading on this factor included “threatens or does physical violence” (Violent and Destructive Behavior domain), “bosses and manipulates others” (Antisocial Behavior domain), “lies or cheats” (Untrustworthy Behavior domain), and “reacts poorly to frustration” (Psychological Disturbances domain).

The third factor, Intrapersonal Maladaptation, accounted for 10% of the total variance and included the following six Part II domains: Stereotyped Behavior, Unacceptable Vocal Habits, Unacceptable Eccentric Habits, Self-Abusive Behavior, Hyperactive Tendencies, and Use of Medication. These domains assess the behaviors that are likely to be intrapersonally dysfunctional but are unlikely to violate the rights of others. Sample items include “disturbing vocal or speech habits” (Unacceptable Vocal Habits), “physical violence to self” (Self-Abusive Behavior), “removes or tears off own clothing” (Unacceptable or Eccentric Habits), and “use of prescribed medication” (Use of Medications).

### Construct Validity

To assess the construct validity of the ABS with psychiatric populations, a number of predicted subgroup comparisons were made. It was hypothesized that clients who were older, who had organic or schizophrenic disorders, and who had been hospitalized for a longer period of time would exhibit lower levels of adaptive functioning. To allow for meaningful comparisons, five subgroups for age (18–24, 25–36, 37–50, 51–64, and over 64 years), four for diagnosis (schizophrenic, affective, organic, and dual-diagnosis) and six for length of current hospitalization (<1, 1–2, 3–4, 5–9, 10–20, and >20 years) were established. The specific subgroups for age and length of hospitalization were determined by (a) an attempt to include sufficient numbers of subjects within each subgroup to permit statistical comparisons and (b) an attempt to make the subcategories conceptually meaningful. A series of multivariate analyses of variance (MANOVAS) were computed to test for subgroup differences. Sample sizes were not sufficiently large to examine interaction effects.

### Age

A one-factor (age group) MANOVA with scores from the 24 ABS domains serving as dependent measures revealed a significant effect for age, Pillai's trace  $F(96, 652) = 2.15, p < .0001$ . Subsequent univariate analyses of variance (ANOVA s) showed significant effects for age on all Part I domains and for the Withdrawal domain on Part II. The means, standard deviations, and ANOVA summary are presented in Table 2.

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Scheffé post hoc analyses ( $p < .05$ ) revealed that older clients had lower adaptive behaviors and were more withdrawn than younger clients. Clients who were older than 65 years generally demonstrated the lowest adaptive skills, whereas 18–24-year-old clients usually ranked highest in adaptive skills. The youngest clients differed significantly from those in the oldest age groups (51–64 and >65 years) on eight Part I domains and on the Withdrawal dimension. Generally, clients between 18–50 years old did not significantly differ in adaptive skills or maladaptive functioning.

#### Diagnosis

The one-factor MANOVA demonstrated a significant effect for diagnostic category, Pillai's trace  $F(72, 489) = 2.66, p < .0001$ . The ANOVA results showed that all but one of the domains for adaptive functioning (Part I) significantly differentiated between the diagnostic categories used in this study (see Table 3). The only maladaptive domain that significantly differentiated between diagnostic groups was Rebellious Behaviors.

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Post hoc analyses ( $p < .05$ ) indicated that organically impaired clients scored lower than other groups in the domain areas of Independent Functioning, Physical Development, Language Development, Numbers and Time, and Socialization and that they were also viewed as less vocationally active, self-directed, and responsible than clients with affective disorders. Clients with affective disorders demonstrated higher economic activity than clients who were diagnosed as either schizophrenic or organically impaired, who in turn were perceived as less domestic than dual-diagnosis clients. Organically impaired clients were also found to be significantly less domestic than those with affective disorders. Finally, with respect to maladaptive behaviors, dual-diagnosis clients were significantly more rebellious than all other groups.

#### Length of current hospitalization

The MANOVA revealed a statistically significant relation between length of present hospitalization and level of functioning, Pillai's trace  $F(120, 815) = 1.43, p < .005$ . The ANOVA s showed significant differences on all adaptive Part I domains except for Self-Direction (see Table 4). Maladaptive domains that significantly differentiated between groups were Stereotyped Behaviors, Unacceptable Vocal Habits, and Unacceptable or Eccentric Habits. Post hoc tests ( $p$

< .05) revealed that the two groups that had been hospitalized for the shortest time (0–1 year and 2–3 years) scored higher on the Independent Functioning domain than those that had been hospitalized the longest (10–20 years and over 20 years). Clients hospitalized between 10–20 years had significantly lower levels of adaptive skills than those hospitalized for a year or less on the domains of Physical Development, Economic Activity, Language Development, Numbers and Time, Domestic Activity, Responsibility, and Socialization and had lower levels on Vocational Activity than those in the 3–4-year group. With respect to Part II domains, Withdrawal, Stereotyped Behaviors, Unacceptable Vocal Habits, and Unacceptable or Eccentric Habits were rated as more prevalent among clients who had been hospitalized for more than 20 years than among those who had been hospitalized less than 1 year.

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## Discussion

The purpose of this study was to determine whether the ABS might be appropriate for assessing adaptive behavior skills among institutionalized, psychiatric patients. The present findings provide some preliminary evidence that the ABS may be useful with mentally disturbed populations.

The principal-components analysis suggested that the 24 ABS domains may consist of three underlying factors. In this study, the first factor assessed Independent Functioning and included all Part I domains, whereas the second and third factors, Interpersonal Maladaptation and Intrapersonal Maladaptation, measured the dysfunctional behaviors that affect others and the self, respectively. There is a striking similarity between the first three factors found in this study and Nihira's (1969a, 1969b) three-factor solution with a mentally retarded sample.

With respect to construct validity, these results tentatively suggest that the ABS is a valid indicator of level of adaptive functioning among psychiatric patients. As was hypothesized, older clients, those with schizophrenic or organic diagnoses, and those currently hospitalized for a longer period of time had lower levels of skill development as measured by the ABS. This suggests that the ABS can usefully discriminate between subgroups of institutionalized psychiatric patients, although Part I domains seemed to discriminate more effectively than their Part II counterparts.

Findings from this study support Becker and Bayer's (1975) assertion that the longer clients are hospitalized, the less prepared they are to function successfully in the community. Clients with the longest lengths of stay had the lowest level of daily living skills and displayed more frequent maladaptive behaviors. However, it was not possible to determine whether these patients remained in the hospital because of their lower adaptive skills or whether their length of hospitalization contributed in a causal way to their skill deficiency.

Organically impaired clients and, to a lesser degree, schizophrenics were reported to have lower levels of adaptive functioning than clients with affective disorders. This is consistent with previous reports ( Sylph et al., 1977) suggesting that chronic psychiatric patients, who are more likely to be schizophrenic or organic-disordered than they are to be affective-disordered, have poorly developed basic living skills. The dual-diagnosis group presented an interesting combination: Although they were more skilled in domestic activities than were those with schizophrenic or organic disorders, they were the most rebellious and antisocial of all participants in the study. To explain this finding, we note that treatment in this hospital for dual-diagnosis individuals focused more on adaptive living skills than it did for those in the other diagnostic categories.

A major limitation of this study was its small sample size. Although the size was large enough to warrant a principal-components analysis of ABS domains, it was not sufficiently large to justify a comparable analysis of individual items. In addition, group sizes were too small for the statistical evaluation of interaction effects. Although they were not tested statistically, interactive effects, such that older clients are more likely to receive organic diagnoses and to stay in the hospital longer than younger clients, were expected. To support this prediction, we found that only 8% of dual-diagnosis and 23% of affective-disordered clients were over 65 years old, whereas 48% of organically disturbed individuals were in this age group.

The results of the principal-components analysis supported the test developers' claim that Part I contains a number of related constructs that assess adaptive functioning but further suggests that Part II contains a number of subdimensions that are relatively independent. If future studies replicate this factor structure with psychiatric patients, several possible modifications of the ABS may be appropriate:

Because all Part I domains loaded highly on the first component, the number of domains and items in Part I can be substantially reduced. Future analyses can identify which items can be eliminated without detrimentally affecting psychometric properties.

Because the Withdrawal domain was included on the Independent Functioning Factor and not on either of those assessing maladaptive behaviors, it is suggested that it be included in Part I rather than Part II.

Part II can be subdivided into interpersonally and intrapersonally maladaptive behavior domains.

On those Part II domains that have adequate reliabilities, some items can be eliminated from the scales that are highly intercorrelated. The most likely candidates for elimination are the first four Part II domains loading on the Interpersonal Maladaptation factor. For those domains that have only one or two items, reliability and construct validity may be improved with the addition of several items assessing related constructs.

Consistent with Paul's (1984) recommendation regarding the assessment of institutionalized psychiatric clients, we found that the ABS provides a more refined and treatment-relevant measure of intervention outcome than the often-used cruder indices of readmission rates and employment status. Consequently, the ABS may be useful in discharge planning. Because the ABS assesses both global and specific areas of adaptive functioning, a client's skill level can be matched with community placements (if available) that require approximately the same functional level. For example, those clients with low levels of adaptive functioning (Part I) but with no substantial maladaptive behaviors (Part II) might benefit most from a moderately supervised community placement focusing primarily on the development of basic living skills (e.g., supervised apartments); on the other hand, clients with good adaptive skills but with extensive maladaptive behaviors might require a smaller and more closely supervised community setting that focuses on the extinction of the undesirable behaviors (halfway house). Within each placement, the client's particular skill strengths and deficits can be considered to develop individualized treatment strategies. To fulfill the prescriptive potential of the ABS, future studies must assess its usefulness for predicting successful adaptation to a variety of community placements.

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