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DIMENSIONS OF THE COMMUNITY-ORIENTED PROGRAMS ENVIRONMENT SCALE (COPES): A HYPOTHESIS-TESTING FACTOR ANALYSIS

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ABSTRACT

In presenting his Community-Oriented Programs Environment Scale (COPES), Moos (1972) has suggested that the ten scales in the inventory may be conceptualized as measuring three broad dimensions; i.e., Relationship, Treatment Program, and Administrative Structure. To test this hypothesis, the scale intercorrelations for members and staff which Moos provided as normative data were separately analyzed using a Procrustes procedure. Coefficients of congruence between the hypothesized and Procrustes factors in both solutions were non-significant, and simple structure was poorly defined. Since no empirical support for the Moos dimensions was obtained, an alternative principal axes solution is offered.

INTRODUCTION

In recent years, the growing emphasis on accountability to external agencies and a desire for improved quality of service have led many treatment facilities to attempt program evaluation for the first time. Typical evaluation, however, is accompanied by costs in time, manpower, and money which many programs are either unable or unwilling to bear. Thus, there has been a concerted effort by researchers to develop relatively simple, inexpensive means of performing evaluation or needs assessment.

In the last several years, one particular evaluation/needs assessment instrument has enjoyed widespread acceptance by the treatment community. This instrument, the *Community-Oriented Programs Environment Scale* (COPES), was developed by Moos (Note 1) to assess ten aspects of the treatment environment. The COPES is a 102-item, true-false inventory designed to measure environmental press, and was patterned closely after Moos' *Ward Atmosphere Scale* (Note 2).

To clarify the interrelationships among the ten scales, Moos (1972) has suggested that three broad dimensions exist in the inventory; i.e., (a) Relationship, (b) Treatment Program, and (c) Administrative Structure or System Maintenance dimension. The *relationship* dimension is composed of the Involvement, Support, and Spontaneity scales; *treatment program* of the Autonomy, Practical Orientation, Personal Problem Orientation, and Anger and Aggression scales; and the *administrative structure* dimension of the Order and Organization, Program Clarity, and Staff Control scales.[1] This conceptualization of the scales as

clustering together in broader, meaningful dimensions immediately suggests the applicability of factor analysis. The purpose of the present paper is to determine whether available data supports Moos' hypothesized dimensions.

METHOD

Normative data for the COPES was obtained by Moos for 54 programs. These included clients and staff of 32 programs, and clients only in the remaining 22 programs. Types of treatment facilities tested included rehabilitation workshops, partial hospitalization programs, halfway houses, and day care centers. Sample sizes for clients and staff were 373 and 203, respectively.

Using published data as a basis for the analyses (Moos, 1972; Note 1), client and staff scale intercorrelation matrices were separately analyzed using a Procrustes procedure from the *User Oriented Factor Analytic Package* (Burdsal, Note 3).[2] The same three-factor target matrix of 1.00 and 0.00 loadings was used for the two groups. The target, therefore, represented ideal simple structure.

RESULTS

The Procrustes factor patterns for members (clients) and staff are presented in Tables 1a and 1b, respectively. The coefficient of congruence (cf. Gorsuch, 1974, p. 253) beneath each factor serves as a measure of the similarity between the Procrustes factor and its intended target factor.

In general, the two solutions reflect rather poor fits to the Moos dimensions and inadequate simple structure. In several instances, for example, scales loaded higher on non-intended factors than on intended ones. In addition, although acceptable for members, correlations among the staff Procrustes factors were quite high; ranging from 0.52 to 0.75.

Table 1a

PROCRUSTES SOLUTION FOR MEMBERS

Scales	Factor 1	Factor 2	Factor 3
Involvement	1.11	0.39	0.66
Support	1.14	0.39	0.35
Spontaneity	0.97	0.68	-0.10
Autonomy	0.58	0.35	-0.30
Practical Orientation	0.80	0.35	0.40
Personal Problem	0.81	0.81	-0.01
Anger & Aggression	0.25	1.15	-0.32
Order & Organization	0.69	-0.34	0.76
Program Clarity	0.83	0.18	0.23
Staff Control	-0.05	-0.06	0.55
Coef. of Congruence	0.738	0.750	0.653

Table 1b

PROCRUSTES SOLUTION FOR STAFF

Scales	Factor 1	Factor 2	Factor 3
Involvement	0.80	0.50	0.28
Support	0.85	0.18	0.15
Spontaneity	0.69	0.42	0.06
Autonomy	0.41	0.36	-0.37
Practical Orientation	0.58	0.25	0.22
Personal Problem	0.63	0.82	-0.08
Anger & Aggression	0.05	0.76	-0.12
Order & Organization	0.42	-0.39	0.62
Program Clarity	0.64	0.04	0.33
Staff Control	-0.14	-0.10	0.60
Coef. of Congruence	0.739	0.763	0.830

A recent article by Korth (1978) concerning the distribution characteristics of chance congruence coefficients listed a critical value (.05 level) of 0.9263 for the 10 variable, 4 factor case. Using 0.90 as a rough approximation for the 10 variable, 3 factor case, only one match (staff factor 3) approached significance. Thus, Moos' hypothesized dimensions were not confirmed.

Since the intended dimensions of the COPES were not substantiated by the data, a new factor analytic solution was sought. Various tests for the number of factors suggested two to four as being possible. Kaiser's "Little Jiffy" (1970) after rounding, however, suggested three factors for both client and staff solutions.

A principal axes factor analysis followed by Varimax rotation was performed, and the three-factor solution for each data set was examined. Since the two solutions were quite similar and generally interpretable, they are presented here as an alternative answer to the "dimensions of the COPES" issue.

Coefficients of congruence were calculated between appropriate staff and client factor pairs. Salient loadings and coefficients of congruence for the two solutions are presented in Table 2. Each three-factor solution accounted for 61% of the total variance. Variance attributable to the three factors of the staff solution was 29.3, 22.0, and 9.8%, respectively. In the client solution, variance accounted for was 31.7, 17.0, and 12.6%.

DISCUSSION

TENTATIVE FACTOR INTERPRETATIONS

Factor 1 is obviously a general factor since seven of the ten scales have salient loadings. This factor was very similar to the first principal component identified by Alden (1978) in an examination of the *Ward Atmosphere Scale*. It should be

noted that all the scales which load Factor 1 (with the possible exception of Personal Problem Orientation) may be thought to be socially desirable in a majority of treatment programs. There is little question, for example, that heightened involvement in program activities and the existence of a strong support network are positive goals for most treatment organizations.

Table 2

PRINCIPAL AXES FACTOR MATRICES
FOR MOOS STAFF AND CLIENTS

Scales	Factor 1	Factor 2	Factor 3	h^2
Involvement	.61 (.75)			.41 (.56)
Support	.66 (.70)			.53 (.58)
Spontaneity	.52 (.43)		-- (.47)	.35 (.47)
Autonomy			.54 (.54)	.43 (.34)
Practical Orientation	.45 (.51)			.21 (.27)
Personal Problem	.44 (.33)	.57 (.43)	.33 (--)	.63 (.33)
Anger & Aggression		.75 (.86)		.57 (.77)
Order & Organization	.39 (.66)	-.61 (-.43)	-.40 (--)	.68 (.63)
Program Clarity	.52 (.53)			.33 (.37)
Staff Control			-.66 (-.53)	.45 (.30)
Coef. of Congruence	.964	.935	.851	

All loadings have been rounded to two decimal places; loadings less than .30 (absolute value) have been omitted; client loadings are enclosed in parentheses; dashes (--) in a given pair of loadings indicate a non-salient loading.

This interpretation is further supported by an examination of the three variables which did *not* load the factor; those being Autonomy, Anger and Aggression, and Staff Control. Each one of the three may suggest a *different* socially positive pole depending upon the type of treatment philosophy a program has. Thus, this factor is tentatively titled *program desirability.*

Factor 2 shall be labeled *treatment philosophy.* A program scoring high on this factor might be described as having an emphasis on client emotional expression and little concern for the orderliness of the program. A client's understanding of his own emotional processes and the free expression of these emotions is felt to be a primary program goal. In such a program, the physical state of the facility may be considered of little importance. The reflection of this factor suggests a program which may have greater emphasis upon client maintenance than emotional treatment *per se.*

Although Factor 3 has slightly different loadings for staff and clients, the two primary loadings for both groups are Autonomy and low Staff Control. Taken together, they may best be represented as *self-determination versus control by others*. It is conceivable that this factor is also related to treatment philosophy, in that a token economy system, for example, may stress staff control and de-emphasize independence or autonomy. Rotter's (1966) concept of internal-external locus of control also comes to mind.

GENERAL COMMENTS

Although obtained from independent factorings and analytic orthogonal rotation, the match between the two solutions (as evidenced by the coefficients of congruence) was quite good. Therefore, there is evidence of structure in the two data sets; that is, the obtained factor solutions cannot be relegated to the status of simply random groupings or clusters of scales. That the three-factor solutions were not *easily* interpretable suggests that perhaps an alternative rotational resolution of the data may be possible. This will become clearer as more data and analyses are made available. The most critical point, however, is that the Procrustes solutions offered no empirical support for Moos' (1972) hypothesized dimensions. As such, although logically appealing, it seems inadvisable to continue to use the broader Moos dimensions as an aid to interpreting COPES results.

FOOTNOTES

Reprint requests should be addressed to the author at the Abraxas Foundation, 307 Fourth Avenue, Suite 1550, Pittsburgh, PA 15222.

[1] A complete description of the individual scales is available from several sources; e.g., Moos, 1972; Moos & Otto, 1972; Moos, Note 1.

[2] Special thanks to Dr. Charles Burdsal, of Wichita State University, for generating the Procrustes solutions.

REFERENCE NOTES

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2. Moos, R.H. *Ward Atmosphere Scale manual.* Stanford: Stanford University, Social Ecology Laboratory, January 1973.

3. Burdsal, C.A. *User Oriented Factor Analytic Package.* Paper presented to the Society for Multivariate Experimental Psychology, Southwestern Division at the Southwestern Psychological Association annual meeting, Oklahoma City, April 1980.

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