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ABSTRACT

The introduction of the System of Multicultural Pluralistic Assessment's (SOMPA's) Sociocultural Scales potentially enables psychologists to more formally acquire and use information about sociocultural characteristics within children's families. However, until now, data on the Scale's stability have not been available. This paper reports the results of a longitudinal study which examines the stability of the Sociocultural Scales over a four year period. The 44 elementary school children studied were drawn from middle and lower class Anglo, Black and Mexican American families. Although some variance in scores is noted, the Sociocultural Scales generally are stable. The magnitude of change in individual and in mean scores is not large, and test-retest correlations are moderate to high. While actual changes in family conditions may have contributed to score variance, scores on items which should have been the same across administrations suggest that respondent or interviewer inconsistencies also may contribute to variance in scores. (Author)

Stability of the SOMPA's Sociocultural Modalities

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SUMMARY: The introduction of the System of Multicultural Pluralistic Assessment's Sociocultural Scales potentially enables psychologists to more formally acquire and use information about sociocultural characteristics within children's families. However, until now, data on the Scale's stability have not been available. This paper reports the results of a longitudinal study which examines the stability of the Sociocultural Scales over a four year period. The children studied were drawn from middle and lower class Anglo, Black and Mexican American families.

Although some variance in scores is noted, the Sociocultural Scales generally are stable. The magnitude of change in individual and in mean scores is not large, and test-retest correlations are moderate to high. While actual changes in family conditions may have contributed to score variance, scores on items which should have been the same across administrations suggest that respondent or interviewer inconsistencies also may contribute to variance in scores.

Stability of the SOMPA's

Sociocultural Modalities

For years psychologists have recognized the importance of considering the child's background while interpreting test information. Demographic variables such as gender, race, and socioeconomic status often are seen as important in accurately describing children's development and in planning for their futures. Psychologists traditionally have relied upon informal measures of social class as well as their best clinical judgments in assessing social status and in determining how the information should be used.

The recently introduced Sociocultural Scales from the System of Multicultural Pluralistic Assessment (SOMPA; Mercer & Lewis, 1977) allow psychologists to measure social and cultural characteristics of children's families more formally. Moreover, Mercer (1975) proposes that test information from various psychometric instruments should be adjusted based upon information from Sociocultural Scales. For example, she proposes that WISC-R IQ scores should be adjusted to form the estimated learning potential so as to help equalize the effects children's social and cultural characteristics have on their IQ test performance.

Though the technology to formally measure and use data on sociocultural characteristics may be available through the SOMPA's Sociocultural Scales, little psychometric information about the Scales is available. Test standards (APA, 1974; Anastasi, 1982) traditionally have emphasized the importance of knowing a test's consistency, reliability, or stability in interpreting information. However, even though the Scales were introduced six

years ago, no evidence on their test-retest stability is available. This paper reports the results of a longitudinal study designed to provide data on the stability of the Sociocultural Scales over a four year period.

Methodology

Subjects. The 44 children for whom Sociocultural Scales data are reported were part of a larger study involving approximately 450 children ages six through 12 on whom various psychological, social, medical, and educational data were acquired (Oakland, 1979, 1980). These children were entering grades one through three when they were tested originally in 1976 (T_1) and were in grades four through six when they were retested in 1980 (T_2). Approximately one-third of the children in this follow-up study are from each of three major racial-ethnic groups (Anglo, black and Mexican American), and approximately one-half are from each of two social classes (SES; lower and middle). Finally, approximately half of the children in the follow-up sample are male and half are female.

Instrument. The Sociocultural Scales are a part of the SOMPA's Parent Interview section. They consist of 22 questions presented in four subscales: (1) the Family Size Scale, (2) the Family Structure Scale, (3) the Socioeconomic Status Scale, and (4) the Urban Acculturation Scale. The scales are divided further into factors which measure different aspects of the area considered by the scale; for example, the Family Structure Scale contains a Parent-Child Relationship factor and a Marital Status Factor. Each scale is scored separately, and raw scores from each scale can be converted to scaled scores. Scaled scores are available for both the child's own racial-ethnic group and for the school culture group. Scaled scores for children's own ethnic groups were used throughout this study.

Procedures.

Subject Selection. The norms for the Sociocultural Scales include children between the ages of 5 and 11. Therefore, although the original (T_1) sample included about 450 children, only about 150 of them were less than 12 years old and still eligible for testing at T_2. About 80 eligible children were located using information from original testing records, the schools, local phone directories, the post office, and other sources (e.g., neighbors). These families were contacted by telephone in order to describe the follow-up study and make an appointment for a home visit. Families who did not have a telephone were contacted directly by home visits. Every effort was made to locate and contact all eligible families living in the Central Texas area.

Data Collection. Sociocultural Scales data were acquired through parent interviews in children's homes by psychologists or social workers. All interviewers had previous experience in interviewing families and were trained in interviewing and scoring procedures for the Sociocultural Scales. Families and interviewers were matched on the basis of racial-ethnic group membership for the follow-up (T_2) interviews.

Indices of Stability of the Sociocultural Scales. Since no one psychometrically accepted definition of the long term stability of an instrument currently exists, several stability indices were considered for the Sociocultural Scales. These included the stability of group means, the stability of test-retest correlations, the stability of lines of best fit for both testings (i.e., T_1 and T_2) and the stability of individual scores. Stability criteria for each of these indices are presented in the Results and Discussion section.

One additional index of stability, the equality of scores across administrations, was considered for the Urbanization Factor of the Urban Acculturation Scale. Because this factor concerns the populations of parents' childhood homes, and therefore a fact which was established previous to both administrations of the Sociocultural Scales, scores on this factor should be equal at T_1 and T_2.

Results and Discussion

Stability of Group Means. Group means for each Sociocultural Scale show evidence of stability if they do not differ significantly ($p > .05$) between score administrations. Mean scaled scores are reported for each Scale for the total follow-up sample and for each racial-ethnic, gender and SES group (Table 1). Results of a two-tailed t test for matched samples between T_1 and T_2 scaled scores for each group and subgroup also are reported.

Put Table 1 about here

In general, the 1976 and 1980 means are about equal; only four of the 32 sets of means differ significantly. Mean scores decrease significantly on the Family Size Scale for Mexican Americans; mean scores increase significantly on the Socioeconomic Status Scale for Anglos and low SES families and on the Urban Acculturation Scale for middle SES families.

Stability of Test-Retest Correlations. Test-retest rank order (rho) and Pearson Product Moment correlations for the two administrations of the Sociocultural Scales are considered to show evidence of stability if they achieve statistical significance ($p \leq .05$).

Put Table 2 about here

Rank order (rho) correlations are reported for the full follow-up sample (Table 2). While the magnitude of these correlations varies somewhat (ranging from .50 to .80), all rank order correlations meet the stability criterion of statistical significance.

Put Table 3 about here

Pearson Product Moment correlations are reported for each Sociocultural Scale for the total sample and all subgroups (Table 3). Correlations are moderate for the Family Size Scale (ranging from the 40s to the mid 70s), and generally are high for the other three Scales (ranging from the high 50s to the high 90s). All correlations achieve the stability criterion of statistical significance except the correlation for the Family Size Scale for Anglos.

Stability of Lines of Best Fit. Line of best fit results indicate stability if the line which best describes 1976 (T_1) Sociocultural Scales scaled scores and predicted second administration scores has a slope of one and an intercept of zero. Under these conditions the mean of predicted second administration scores for a given first administration score equals that first administration score (i.e., while individual scores may show some variance due to measurement error, scores are expected to be the same across administrations when a group of children is considered).

Predicted scores and equations for lines of best fit were derived using a series of linear models (Program MODEL, Ward & Jennings, 1973, pp 317-327). Predicted 1980 (T_2) scores differed from 1976 scores for all groups on all scales (i.e., the stability criterion described above was not met for any group or Scale). This suggests that there is at least some variance in scores between administrations.

Put Table 4 about here

Equations for predicted scores are presented in Table 4. Equations produce the most likely second administration score (Y) for a given score on the first administration (X). For example, the predicted second administration Family Size Scale Score for an Anglo child with a first administration score of 55 is 53. (For Anglos, Y=16.27 + 0.67X; Y=16.27 + (0.67 x 55) = 53.12, which rounds to 53).

Stability of Individual Scores. Stability of individual scores was examined by using the standard error of measurement for each Sociocultural Scale factor. Psychometric theory suggests that any observed score is a combination of an individual's true score and an error score. In a group of observed scores, the percentage of cases in which true scores can be expected to fall within a specified number of standard errors of measurement of their corresponding observed scores can be calculated using the normal distribution (Anastasi, 1982). Sixty-eight percent of observed scores can be expected to fall within one standard error of measurement of their corresponding true score. Therefore, if true scores for the two administrations

of the Sociocultural Scales are the same; i.e., if individual scores are stable, 68 percent of all second administration scores can be expected to fall within one standard error of measurement of first administration scores.

Factor rather than Scale stability was examined because it was anticipated that standard errors of measurement associated with a scale that combines two or more factors would be very high, and might lead to an overestimate of the scale's stability. Factors were taken from the SOMPA's technical manual (Mercer, 1980). Since the SOMPA's technical manual does not provide standard errors of measurement for either the Sociocultural Scales or their factors, standard errors of measurement were calculated from data from the original (T_1) study described above (N=450).

Put Table 5 about here

The number and percentage of cases for which scores from the two Sociocultural Scales administrations differ by one standard error of measurement or less are reported for the full sample and all subgroups (Table 5). Overall, individual scores appear stable for most factors. The stability criterion of 68 percent of second administration scores within one standard error of measurement of first administration scores is achieved for the full group and for all subgroups for the Parent-Child Relationship factor, the Marital Status factor, and the Source of Income factor. The 68 percent criterion is not achieved for any group on the Occupation of Head of Household factor. However, this factor contains only one item, so that any change in an answer

(rather than any change greater than one standard error of measurement) would contribute to "instability." For all other factors, the 68 percent criterion is reached for at least one group and is nearly reached by several others.

Stability of the Urbanization Factor of the Urban Acculturation Scale. Scores on the Urbanization Factor of the Urban Acculturation Scale are based on the population of each parent's childhood home at the time each parent was growing up. Since parents' childhoods precede both administrations of the Sociocultural Scales, scores on this factor should be the same for both administrations.

Put Table 6 about here

The number and percentage of cases for which scores are in fact equal are reported for the total sample and all subgroups (Table 6). Overall, scores are about equal for half of the total sample and for about half of the cases in each subgroup.

In four cases (18 percent of those which were not equal) the change in Urbanization Factor score is explained by changes in the respondent or his/her status. For example, in one case, the mother had become the head of the household between 1976 and 1980. In all other cases (N=18), either responses or the rating assigned to them by interviewers differed between the two administrations.

Summary. In assessing the overall stability of the Sociocultural Scales, various limitations associated with this study's sample should be considered. In addition to its relatively small size, the sample includes children who lived in the Austin, Texas area between 1976 and 1980 whose family residence could be traced in some way through school district, postal and/or telephone listings, and whose mothers agreed to participate in this study. Stability of residence may somehow interact with families' actual sociocultural status or its assessment.

In general, Sociocultural Scales scores appear consistent across administrations. While line of best fit results suggest that scores for the two administrations are not exactly equal, group means show few significant changes, test-retest correlations generally are significant and are moderate to high, and changes in individual scores generally fall within the standard error of measurement for the associated Sociocultural Scales factor. Some variance in scores probably is attributable to changes over time in families' sociocultural status. However, scores on the Urbanization factor of the Urban Acculturation Scale suggest that respondent or interviewer inconsistency also may have contributed to variance in scores. It is possible that respondents are inconsistent in their estimates of the population of their childhood home and that interviewers have difficulty consistently estimating what the population of an unfamiliar town might have been 10 or 20 years ago in cases where respondents are unable or unwilling to give an estimate. Population records (such as census data) might be made available to interviewers so as to improve the reliability of the Urban Acculturation Sociocultural Scale.

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Table 1

Scaled Score Means for 1976 and 1980 Administrations of the Sociocultural Scales

	N	Family Size Scale		Family Structure Scale		Socioeconomic Status Scale		Urban Acculturation Scale	
		1976	1980	1976	1980	1976	1980	1976	1980
l Group	44	54.6	53.0	50.5	51.0	53.6	55.8	47.7	49.1
os	16	54.1	52.7	45.9	50.0	49.9	55.5*	42.4	39.9
ks	12	52.5	54.2	51.7	46.9	56.5	55.0	46.8	54.7
can Americans	16	56.8	52.3*	54.2	55.1	55.0	56.6	53.7	54.1
s	22	52.8	53.3	51.9	51.7	55.0	56.0	47.0	49.2
les	22	56.3	52.7	49.1	50.3	52.1	55.5	48.5	49.0
SES	20	52.0	50.1	45.8	47.1	42.0	48.4**	44.8	44.7
le SES	24	56.8	55.5	54.5	54.2	63.2	61.8	50.1	52.7*

robabilities are from t tests for matched samples.

≤.05
≤.01

14

Table 2

Rank Order Correlations Between 1976 and 1980 Sociocultural Scales Scaled Scores for the Full Sample.

Scale	N	Rho
Family Size	43	.50*
Family Structure	44	.75*
Socioeconomic Status	42	.77*
Urban Acculturation	44	.80*

* - $p \leq .01$

Table 3: Pearson Product Moment Correlations Between 1976 and 1980 Sociocultural Scales Scores

	N	Family Size Scale	Family Structure Scale	Socioeconomic Status Scale	Urban Acculturation Scale
Group	44	.50***	.82***	.78***	.75***
s	16	.39	.84***	.79***	.89***
s	12	.76**	.70**	.82***	.62*
an ricans	16	.75***	.98***	.81***	.86***
	22	.62***	.82***	.88***	.62***
es	22	.42*	.82***	.73***	.88***
ES	20	.59**	.84***	.58**	.68***
e SES	24	.40*	.72***	.80***	.84***

≤.05
≤.01
≤.001

Table 4: Equations for Predicted Second Administration Sociocultural Scale Scores (1)

	Family Size Scale	Family Structure Scale	Socioeconomic Status Scale	Urban Acculturation Scale
Group	Y=16.27 + 0.67X	Y=15.04 + 0.71X	Y=21.16 + 0.65X	Y=11.31 + 0.79X
s	Y=16.27 + 0.67X	Y=15.04 + 0.71X	Y=21.16 + 0.65X	Y= 2.56 + 1.00X
s	Y=16.27 + 0.67X	Y=15.04 + 0.71X	Y=21.16 + 0.65X	Y=34.74 + 0.43X
an ricans	Y=16.27 + 0.67X	Y=15.04 + 0.71X	Y=21.16 + 0.65X	Y=-16.76+ 1.32X
	Y=16.27 + 0.	Y=15.04 + 0.71X	Y=21.16 + 0.65X	Y=23.60 + 0.54X
es	Y=16.27 + 0.67X	Y=15.04 + 0.71X	Y=21.16 + 0.65X	Y=-4.40 + 1.10X
ES	Y=16.27 + 0.67X	Y=15.04 + 0.71X	Y=28.50 + 0.48X	Y=11.31 + 0.79X
e SES	Y=16.27 + 0.67X	Y=15.04 + 0.71X	Y=-1.23 + 1.00X	Y=11.31 + 0.79X

quations produce the most likely second administration score (Y) for a given score on the first dministration (X). For example, the predicted second administration Family Size Scale Score for n Anglo child with a first administration score of 55 is 53. (Y=16.27 + (0.67 x 55) = 53.12 hich rounds to 53.)

Table 5

Stability of Individual Scores on Sociocultural Scale Factors Acquired Over a Four Year Period

	Family Size Factor (N=43)	Parent-Child Relationship Factor (N=44)	Marital Status Factor (N=44)	Source of Income Factor (N=44)	Occupation of Head of Household[2] (N=43)	Sense of Efficacy Factor (N=44)	Community Participation Factor (N=44)	Anglica-zation Factor (N=44)	Urbanization Factor (N=44)
Group	29 (67%)	38 (86%)	38 (86%)	37 (84%)	14 (33%)	28 (64%)	31 (70%)	35 (79%)	28 (64%)
s	10 (63%)	16 (100%)	14 (88%)	12 (75%)	6 (40%)	11 (69%)	12 (75%)	15 (94%)	11 (69%)
s	9 (75%)	9 (75%)	10 (83%)	12 (100%)	4 (33%)	6 (50%)	11 (92%)	6 (50%)	5 (42%)
an-ricans	10 (67%)	13 (81%)	14 (88%)	13 (81%)	4 (25%)	11 (69%)	8 (50%)	14 (88%)	12 (75%)
	14 (67%)	19 (86%)	20 (91%)	21 (96%)	9 (41%)	11 (50%)	16 (73%)	17 (77%)	13 (59%)
es	15 (68%)	19 (86%)	18 (82%)	16 (73%)	5 (25%)	17 (77%)	15 (68%)	18 (82%)	15 (68%)
ES	14 (70%)	15 (75%)	17 (85%)	18 (90%)	7 (35%)	10 (50%)	14 (70%)	15 (75%)	13 (65%)
e SES	15 (65%)	23 (96%)	21 (88%)	19 (79%)	7 (30%)	18 (75%)	17 (71%)	20 (83%)	15 (62%)

The numbers (and percentages) reflect the number (and percentage) of cases for which second administration sociocultural factor scores were within one SEM of first administration scores.

The occupation factor contains only one item. Numbers and percentages represent those cases for which the same response was given for both administrations.

Table 6

Number and Percentage of Cases with Equal Scores on the Urbanization Factor of the Urban Acculturation Scale.

Group	N	Number in group with equal scores	Percentage in group with equal scores
Total Sample	43	21	49%
Anglos	16	8	50%
Blacks	11	5	45%
Mexican Americans	16	8	50%
Low SES	19	10	51%
Middle SES	24	11	46%