LONGITUDINAL-SEQUENTIAL STUDIES OF MARITAL ASSORTATIVITY

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Presented at the Annual Meeting of the Gerontological Society of America,
Chicago, Illinois, November 21, 1986.

The research reported in this paper was supported by grant
#AG03544 from the National Institute of Aging.

Longitudinal-Sequential Studies of Marital Assortativity

A large body of literature examines similarity between married couples. Reviews of this research (Murstein, 1980; Vandenberg, 1972; Jensen, 1978) report evidence of similarity (assortativeness) between couples on many variables, including age, propinquity before marriage, parental socioeconomic status, and intelligence (Murstein, 1980). Lower but significant correlations between spouses have been found on specific cognitive abilities and personality dimensions (Zonderman, Vandenberg, Spuhler, and Fain, 1977; Murstein, 1980).

Previous researchers attempted to explain the observed similarity as based on either initial couple similarity, convergence of abilities over the marriage, the divorce of couples who are dissimilar, or confounds due to age-related trends (Price and Vandenberg,1980). Research findings by behavioral geneticists attributed similarity to initial assortment (Zonderman et al. 1977; Watkins and Meredith, 1981; Buss, 1984a). The cross-sectionial research designs that have dominated research in this area, however, result in assessments of change in similarity over marriage being based on comparisons between couples of different marriage durations.

The present study employs a longitudinal sample of married couples to investigate changes in couple similarity over time on cognitive abilities and on personality rigidity-flexibility. In addition to being able to study patterns within the same couples over time, the availability of multiple measures of cognitive abilities permits us to examine how couple assortativity varies across abilities.

Methods

Subjects

Subjects for this study include 175 married couples drawn from the Seattle Longitudinal Study, a longitudinal-sequential study of psychometric intelligence and personality rigidity-flexibility in adulthood. Data have been collected on over 3,000 subjects in five waves (seven years apart) since 1956 (for more details on the design of this study, see Schaie, 1983).

Only those married couples in which both partners participated in at least two waves of measurement are included in the sample. Couples entered the study in either 1956, 1963, or 1970. The inclusion of couples in the Seattle Longitudinal Study was a consequence of random sampling: couples were not specifically sought out. Of the 175 couples, data are available over seven years for 153 couples, fourteen years for 89 couples, and twenty-one years for 65 couples. There are data available over twenty-eight years for 22 couples, but they are not included in these analyses. The 7-year interval is used as the unit of analysis since we have couples from varied lengths of marriage.

At the initial testing, subjects ranged from 22 to 79 years of age. The subjects in the 21-year analysis (M=42.31) were slightly younger than those in the 7-year (M=44.94) and 14-year (M=43.18) data sets. Subjects in the three groups had similar educational, economic, and occupational backgrounds.

Measures

Measures used in these analyses included the five subtests of Thurstone's Primary Mental Abilities (Verbal Meaning, Spatial Orientation, Inductive Reasoning, Number, and Word Fluency-Thurstone and Thurstone, 1949) and the three dimensions of the Test Of Behavioral Rigidity (Motor-Cognitive Rigidity, Personality-Perceptual Rigidity, and Psychomotor Speed--Schaie and Parham, 1975). Motor-Cognitive Rigidity indicates the individual's ability to shift from

one task to another. Personality-Perceptual Rigidity measures the ability to perceive and adjust to new and unfamiliar patterns and inter-personal situations. Psychomotor Speed indicates the individual's rate of emission of familiar cognitive responses. Personal and demographic data were obtained from a personal data form routinely administered to all subjects since the inception of the Seattle Longitudinal Study.

Results

Cognitive Ability Measures

Initial correlations for the 7-, 14- and 21-year data sets reveal significant correlations on Verbal Meaning, Reasoning, and Word Fluency. For Verbal Meaning (See Figure 1), correlations increase across the first seven years for all three data sets (only slightly in the 14-year set--from .43 to .46). From seven to fourteen correlations don't change much for the 14-year data set, but they decrease for the 21-year set so that they are the same as the initial correlation (.43). The correlation then rises again at the twenty-one year point.

[insert Figure 1 about here]

For Reasoning (Figure 2), correlations over the first seven years increased for all data sets. From seven to fourteen years, the 14-year and 21-year set converge, both decreasing over this period (.38 to .35). At the twenty-one year point, the correlations again increase.

[insert Figure 2 about here]

For Word Fluency (Figure 3) there is again an increase over the first seven years for all data sets. All start at about the same point, with the 21-year data set increasing the most (to .42). From seven to fourteen years there is a decrease in both the 14-year data set and the 21-year set (decrease is steeper in 21-yr set). From fourteen to twenty-one years, the correlations increase again, but did not reach the level at the seven year point.

[insert Figure 3 about here]

Correlations on Spatial Orientation and Number were not significant at any time in the 7- and 14-year data sets. However, in the 21-year data set, both had become significant by the twenty-one year measurement. For Spatial Orientation, the correlation went from .17 at Time 1 to .05 at the seven and fourteen year points and increased to a significant correlation of .23 after twenty-one years. Number rose from a correlation of .18 to .23 (a significant correlation) over the first seven years and increased to .29 after fourteen years. The correlation on Number fell from .29 to .22 (still significant) from fourteen to twenty-one years.

Note that the correlations at the last point of measurement for each data set are higher for all abilities than those correlations at Time 1.

Personality Rigidity-Flexibility

In the 7- and 14-year data sets (see Figure 4), correlations on Motor-Cognitive Rigidity are not significant at Time 1, but become significant after seven years. The 14-year data set then levels off (slightly increasing) from the seven to fourteen year points. In the 21-year data set, however, correlations don't become significant until after twenty-one years. They rise over the first seven years, then drop slightly after fourteen years and then increase again after twenty-one years.

[insert Figure 4 about here]

For Personality-Perceptual Rigidity (Figure 5), correlations increase in the 7-year data set. In the 14-year data set, correlations never reach significance, but do increase from a slightly negative correlation (-.03) to .13 after seven years and level off (to .14) at fourteen years. In the 21-year analysis, correlations again increase over the first seven years (becoming significant), drop at fourteen years and then increase again after twenty-one years.

[insert Figure 5 about here]

For Psychomotor Speed (Figure 6), correlations over the first seven years increase for all the data sets and then decrease from seven to fourteen years. For the 21-year data set, the correlations then increase at the twenty-one year point.

[insert Figure 6 about here]

Cross-Lag Correlations

Cross-lagged panel correlations were examined for husband and wife scores at two points in time in an effort to determine the direction of possible causal effects for the increased similarity from one partner to the other. The analysis we employed controlled for differences in reliability and stationality as suggested by Kenny (1975).

On the cognitive ability measures, all of the significant cross-lags involved husbands' functioning at Time 1 predicting wives' performance at Time 2. In the 7-year data set, husbands' performance on Reasoning influenced wives' performance on Reasoning seven years later. In the 14-year data set, husbands' performance on Word Fluency influenced wives' performance on Word Fluency fourteen years later. No significant cross lags were found in the 21-year data set on cognitive abilities.

Since husbands are generally older than their wives and men experience earlier age-related decline than women, the observed patterns of change could be due to age changes by gender rather than some aspects of the marital situation (cf. also Price and Vandenberg, 1980). Therefore, we re-ran the cross-lag analysis controlling for the age of the husbands and wives. Again, husbands' performance on Reasoning influenced wives' performance seven years later and husbands' performance on Word Fluency influenced wives' performance on Word Fluency fourteen years later. These cross-lag effects were also significant if we controlled for the differences in education levels between husband and wife.

On the personality rigidity-flexibility measures, husbands' Personality-Perceptual Rigidity influences wives' Motor-Cognitive Rigidity seven years later and this is significant when controlled for age and for education. Husbands' Personality-Perceptual Rigidity influences wives' Personality-Perceptual Rigidity both seven and fourteen years later. However, this effect is not significant when controlled for age. Over twenty-one years, wives' Psychomotor Speed influences husbands' Psychomotor Speed, but this is not significant when controlled for age or education.

After controlling for age, all significant cross-lags involved husbands' functioning at Time 1 influencing wives' performance at Time 2.

Discussion

Our results do find some evidence of initial assortment between couples, especially on Verbal Meaning, Reasoning, and Word Fluency. However, initial correlations do not remain constant over time--married couples do become more similar over marriage. The convergence we observed seems to be a product of husbands' performance predicting that of their wives' later on, particularly on the abilities of Reasoning and Word Fluency. The husbands' influence on these abilities does not appear to be an age-related phenomena.

In addition to contributing to a theoretical explanation of couple assortativity, our findings are relevant to issues of marital stability and intellectual functioning. Previous research suggests that marital satisfaction and stability may be related to similarities in personality traits (Skolnick, 1981; Cattell and Nesselroade, 1967). It may be that our findings of convergence on cognitive abilities and personality rigidity-flexibility are a result of the positive interaction and communication that couples engage in. It may be that couples who do not converge on traits and abilities are lower in marital satisfaction and/or more likely to separate or divorce.

If more studies support our findings of convergence, it may be that future researchers will have to consider the cognitive complexity of the marriage environment. Kohn and Schooler (1983) have found that the complexity of the work environment has an effect on the level of one's cognitive functioning. Future researchers might also investigate the relative contributions of the work environment on each spouse and the spouses' influence upon each other.

Obviously, our data are not without problems. The Seattle Longitudinal Study was not designed to study similarity in married couples--the couples resulted as a consequence of random sampling. Thus, we have couples entering and leaving the study at various points in their marriage. Our data are also collected on a number of different cohorts. Thus, some of the trends we observe may noI apply to earlier or more recent cohorts. For example, the cross-lag findings of husbands' functioning influencing wives' later performance may be a result of all of the couples being married before 1970.

Whatever limitations our data may have, our findings certainly call into question previous cross-sectional research on the topic of couple assortativity. Previous findings which explain observed couple similarity as a function of initial assortment should not be accepted without further longitudinal research into this issue.

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Original figures are missing, but these tables contain the #s used in creating the figures

TABLE 1

CORRELATIONS (HUSBAND-WIFE OVER TIME) FOR PMA'S

Test	Dataset	T1	7 years	14 years	21 years
VERBAL	7 yr	.40 **	.49 **		
MEANING	14 yr	.43 **	.46 **	.47 **	
	21 yr	.43 **	.57 **	.43 *	.48 **
INDUCTIVE	7 yr	.33 **	.48 **		
REASONING	14 yr	.27 *	.38 **	.35 **	
	21 yr	.33 *	.38 *	.35 *	.46 **
WORD FLUENCY	7 yr	.20 *	.31 **		
	14 yr	.22 *	.38 **	.30 *	
	21 yr	.21 *	.42 **	.25 *	.34 *
SPATIAL	7 yr	.03	.07		
ORIENTATION	14 yr	.09	.10	.11	
	21 yr	.17	.05	.05	.23 *
NUMBER	7 yr	-.01	.03		
	14 yr	.01	.00	.05	
	21 yr	.18	.23 *	.29 *	.22 *

TABLE 2

CORRELATIONS (HUSBAND-WIFE OVER TIME) FOR TBR'S

Test	Dataset	T1	7 years	14 years	21 years
MCR	7 yr	.10	.28 **		
	14 yr	.02	.34 **	.36 **	
	21 yr	.06	.18	.10	.26 *
PPR	7 yr	.35 **	.48 **		
	14 yr	-.03	.13	.14	
	21 yr	.16	.30 *	.23 *	.40 **
PS	7 yr	.26 **	.30 **		
	14 yr	.29 *	.42 **	.24 *	
	21 yr	.36 *	.44 *	.39 *	.46 **

Figure 1

Verbal Meaning

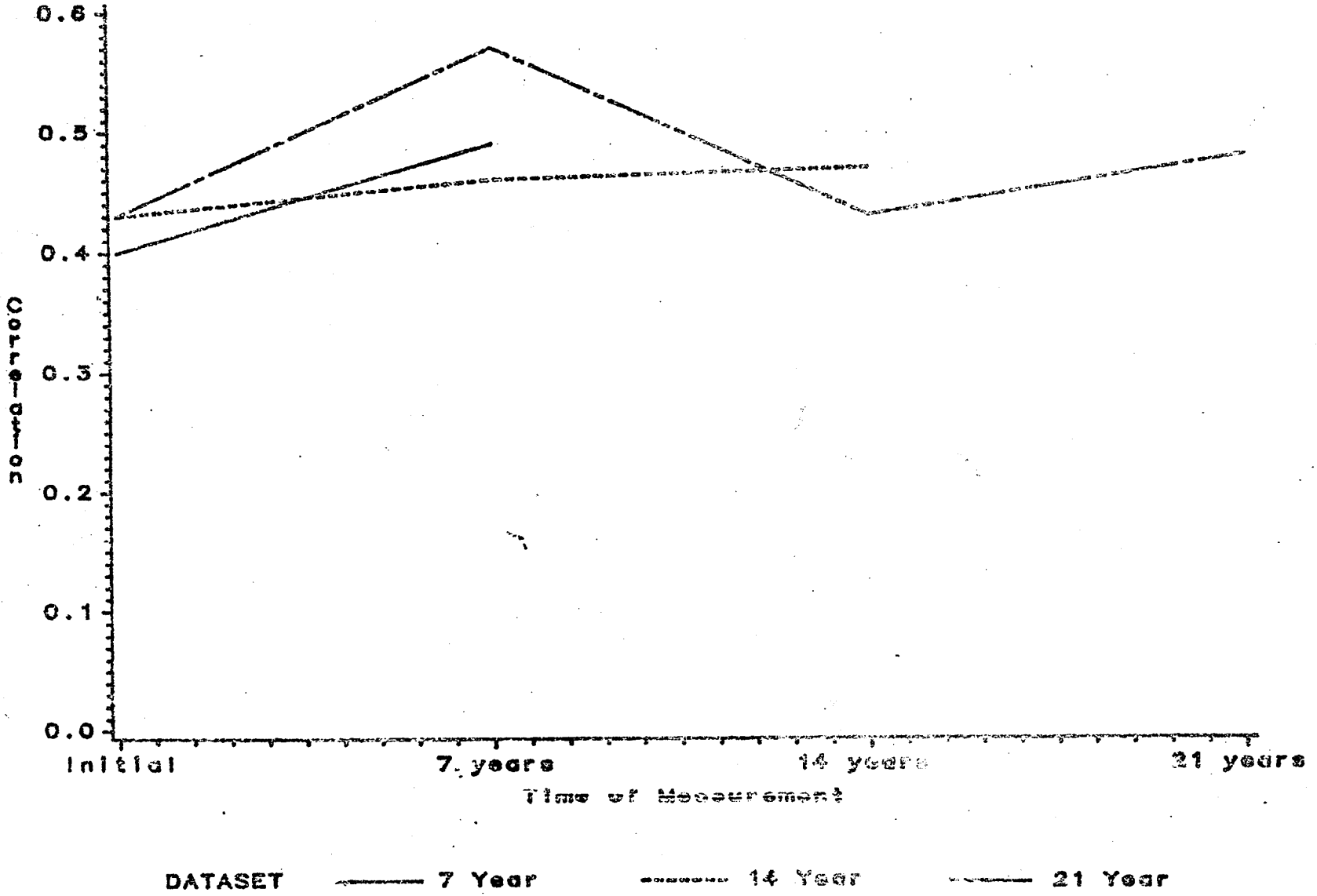

Figure 2

Inductive Reasoning

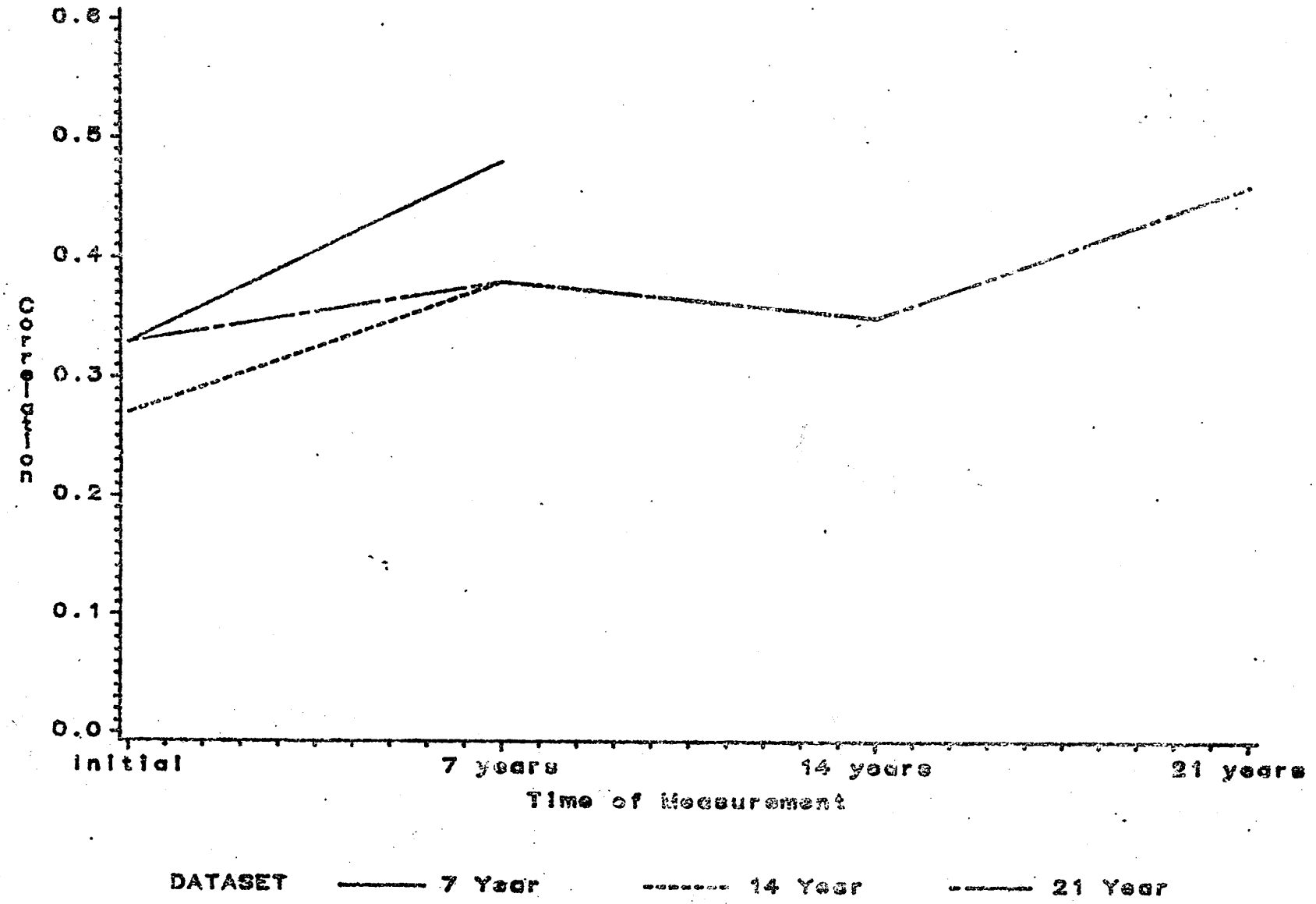

Figure 3

Word Fluency

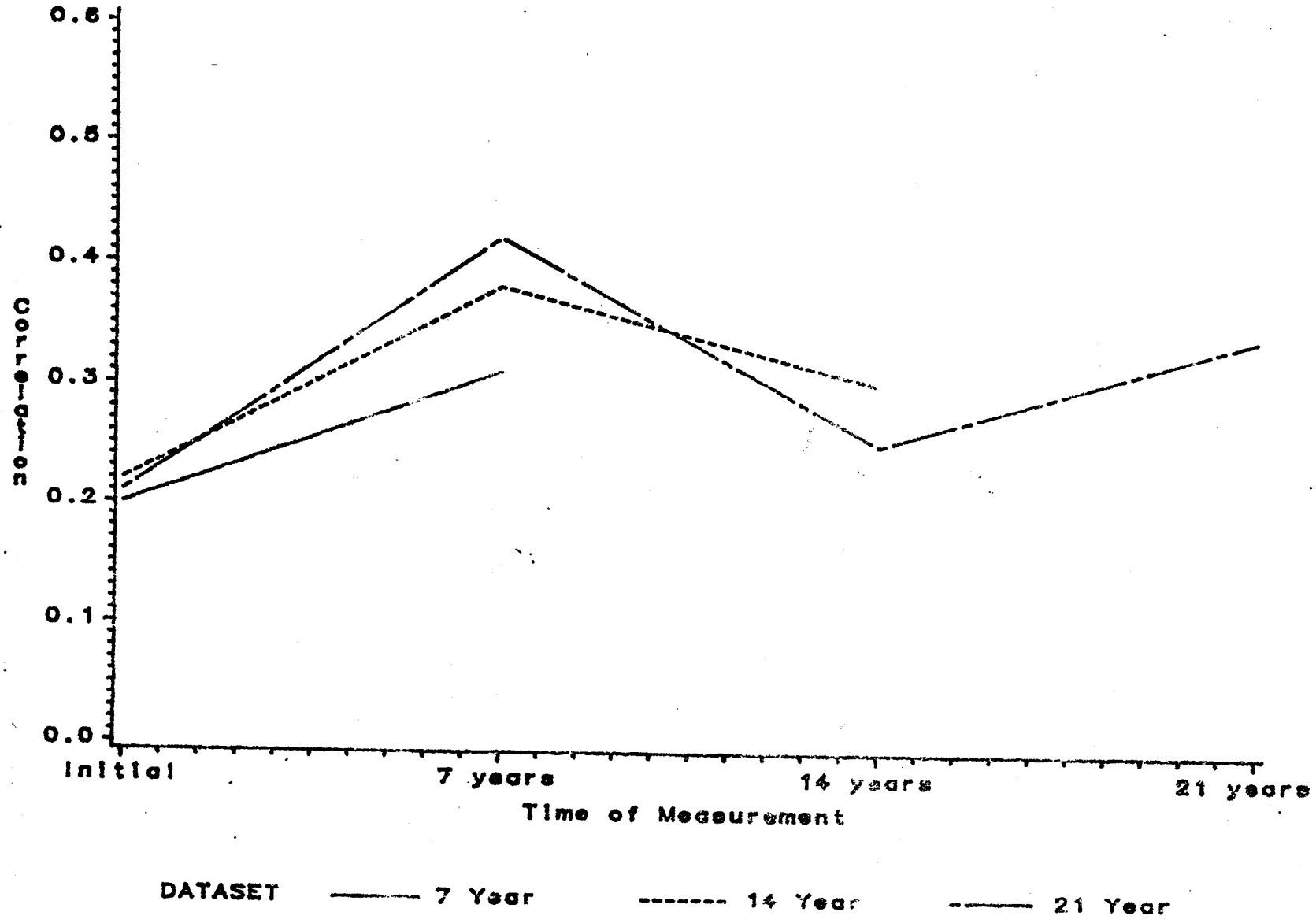

Figure 4

Motor–Cognitive Rigidity

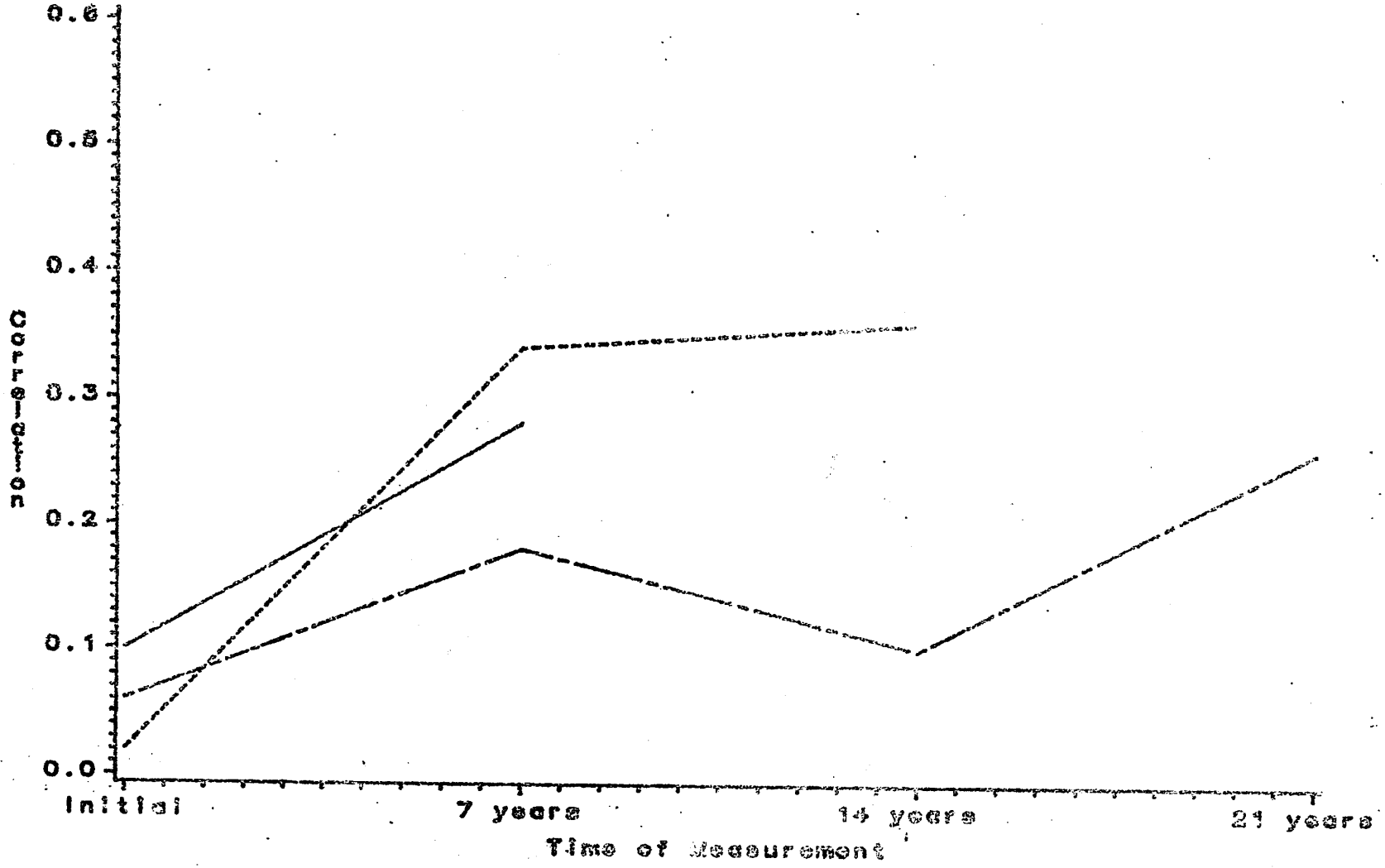

Figure 5

Personality–Perceptual Rigidity

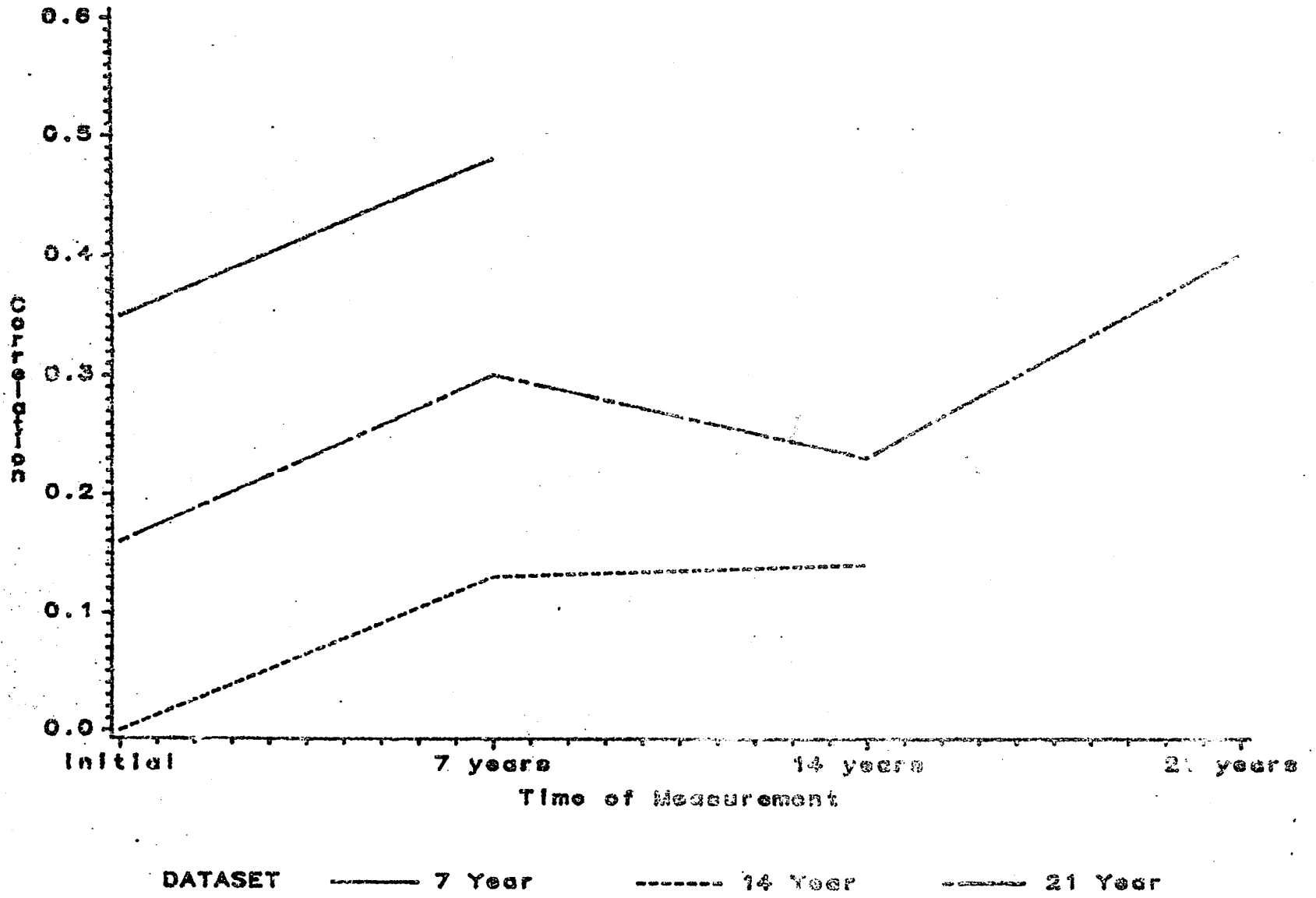

Figure 6

Psychomotor Speed