

CONSTRUCT VALIDATION OF
THE TYPE A BEHAVIOR PATTERN IN CHILDREN:
THE IMPORTANCE OF ANGER AND ACHIEVEMENT STRIVING

by

Nancy J. Yaeger

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APPROVED:

T. H. Ollendick, Chair

C. Carlson

R. T. Jones

J. K. Sawyers

R. A. Winett

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Committee Chairperson: Thomas H. Ollendick

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(ABSTRACT)

The validity of the Type A construct for children was empirically examined in the present study. The multi-trait, multi-method construct validation strategy was used to determine if the convergent, concurrent, and discriminant validities of the Type A construct would be supported. Constructs used as comparisons included anger, achievement-striving, and depression. Type of measures used included self-report, teacher-rating, and behavior observations. Subjects were 132 boys and girls in the fifth grade in elementary schools in Southwestern Virginia. Additional multiple regression analyses were employed to determine the best predictors of assessed levels

of Type A behavior in children.

Results indicated that different methods of measuring Type A behavior in children were significantly intercorrelated, thereby supporting the convergent validity of Type A in children. In addition, Type A was significantly and positively correlated with anger and achievement-striving, but more ambiguously related to depression. Type A did not achieve consistent discriminant validity from anger and achievement-striving, however, it was discriminantly valid when contrasted with depression. It was concluded the Type A behavior pattern for children did not achieve consistent construct validity. The implications of these findings for future research in the area of Type A behavior were discussed.

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INTRODUCTION

In recent years, increasing attention has been focused on the Type A behavior pattern. Concisely defined, the Type A behavior pattern is characterized, in adults, by "extremes of aggressiveness, easily aroused hostility, a sense of time urgency, and competitive achievement striving" (Matthews, 1982, p. 293). Importantly, the Type A behavior pattern is not considered a trait, nor a discrete typology. Instead, the Type A behavior pattern is a set of elicited behaviors considered to exist on a continuum. That is, classification as Type A results from the presence of a simple preponderance of a set of behaviors, while the absence of these behaviors results in classification as a Type B individual.

The ultimate importance of the Type A behavior pattern is its theoretically and empirically established link to coronary heart disease risk (Jenkins, Rosenman, & Zyzanski, 1974). In efforts to clearly delineate the crucial psychological features of this behavior pattern, a plethora of research has focused on establishing the existence and stability of the pattern, and examining behavioral, cognitive, and physiological responses of those displaying the pattern to a variety of conditions (Matthews, 1982). The practical goal of such research is to define processes underlying the Type A behavior

pattern, so that appropriate interventions may be designed to alter the behavior pattern, and hopefully reduce the associated risk for coronary heart disease. Indeed, a related body of research has focused entirely on these latter goals. That is, research efforts have undertaken the goal of designing and implementing intervention programs, with varying degrees of success.

Equally interesting is a developmental perspective on the Type A behavior pattern. In this vein, examination of the early appearance of the pattern has been undertaken, and similarities to the adult pattern have been well-noted (e.g., Matthews & Angulo, 1982; Wolf, Sklov, Wenzl, and Berenson, 1982). Along with validation research similar to the adult work, assessment of heritability, familial similarity, and parent-child interactions have yielded further information regarding the possible crucial developmental processes for the pattern. Research with children and adolescents displaying elements of the Type A behavior pattern thus may elucidate the developmental processes of this risk factor (Matthews, 1983), and further, suggest more primary methods of intervention for coronary heart disease risk via psychological procedures.

The importance of the Type A construct in adults has thus engendered overwhelming enthusiasm in research on Type A in children. Whether such enthusiasm is warranted will be questioned in the present study. In particular,

the relationship between the Type A construct in children and other closely related constructs such as anger and achievement orientation as well as a less related construct (i.e., depression) will be examined. Findings of a high degree of similarity between the Type A construct and these alternate constructs in children may have considerable implications for conceptualizations of the processes which underlie Type A behavior in children and give rise to Type A behavior in adults.

Assessing the Type A Behavior Pattern in Children and Adolescents

As in research on Type A with adults, work with children has suggested that the Type A pattern indeed may be evidenced in children, as well as adolescents.

A number of methods for measuring Type A in children and adolescents have been used. First, Matthews and her colleagues have suggested the use of a global behavior rating scale filled out by an adult familiar with the child's behavior, usually a parent, teacher, or caretaker. In contrast, the Bogalusa group (Wolf et al., 1982) have used a self-report measure which is administered directly to children. Finally, assessment of Type A in children and adolescents has been accomplished by using adaptations of the Structured Interview format (Rosenman, 1974) and of the Jenkins Activity Survey (Jenkins, Zyzanski, &

Rosenman, 1974; Yarnold, Bryant & Grimm, 1987).

Interestingly, research on the Type A behavior pattern in children has relied most frequently on classification by the teacher/parent-rating MYTH, while adult focused research supports the use of the Structured Interview method for the most accurate prediction of coronary disease risk (Byrne, Rosenman, Schiller & Chesney, 1985).

The Matthews Youth Test for Health (MYTH) consists of 17 items reflecting Type A behaviors identified in adults as they are manifested in children. Matthews and Angulo (1980) have found that teachers' ratings of children on the MYTH are reliable and internally consistent and that they yield two orthogonal factors: competitiveness and impatience-aggression. Further, repeated ratings over a one-year period on the MYTH of children ages five through thirteen are as stable as adult Type A ratings for a similar time period (average $r=.55$). Thus, the stability of the Type A behavior pattern may be established already in elementary school age children (Matthews & Avis, 1983).

The MYTH's reliability has also been established with younger, preschool cohorts, and the similarity of parents' and teachers' ratings has been examined. Teachers' ratings of preschoolers were found to remain consistent over a three month period, and were unrelated to the degree of Type A behaviors of teachers completing the ratings (Murray & Bruhn, 1983). Mothers' ratings of

preschoolers on the MYTH were significantly different from teachers' ratings, although these differences were not related to the sex or ethnicity of the child who was being rated. Mothers rated their children as more Type A, while teachers' ratings varied more than mothers' ratings (Murray, Bruhn, & Bunce, 1983). These findings potentially reflect actual differences in the children's behaviors between home and school settings, or alternately, differing expectations on the part of mothers and teachers about children's behaviors.

Although the stability of MYTH ratings has been established, sex differences have been noted. School-age boys have been rated significantly more Type A than school-age girls (Matthews & Angulo, 1980), although at the preschool level, inconsistent sex differences have been noted (Lundberg, 1983a; Murray, Bruhn, & Bunce, 1983). Further, some change in the level of Type A behaviors reflected by the MYTH across ages does occur. Boys were seen to become more Type B between the ages of four and six (Murray et al., 1983), although in general the levels of Type A behavior in both girls and boys increased somewhat with their school grade for children between the ages of five and thirteen (Matthew & Avis, 1982).

The Hunter-Wolf A-B Rating Scale, administered in a self-report format, consists of 24 items (each on a seven-

point scale) which are thought to reflect the major components of Type A behavior. This measure also has been judged to be reliable on a six week retest, and a principal components factor analysis yielded four factors: eagerness-energy (eagergy), restlessness-aggression, leadership, and alienation (Wolf et al., 1982). This measure was developed from a shorter (seventeen item) rating scale used by the same authors in previous work (Wolf, Hunter, & Webber, 1979). The stability of Hunter-Wolf scores for a sample of 8-15 year old boys and girls over a one year period has been reported. Weidner et al. (1986) reported a Pearson product-moment correlation of .70 for overall Type A Hunter-Wolf scores for a one year period. Significant test-retest correlations for subscales of the Hunter-Wolf over the one year time period were reported as follows: Restlessness-Aggression=.72, Leadership=.70, and Alienation=.43. The stability of the Eagerness-Energy subscale was not significant ($r=.30$).

Another rating scale for use with children, with relatively little information available regarding its internal consistency or reliability, is the Type A Activity Scale, a 32 item adapted version of the scale used to assess the Type A behavior pattern in adults by Rosenman and his colleagues (Butensky, Faralli, Heebner, & Waldron, 1976; Insel, Fraser, Phillips, & Williams, 1981). Similarly, a student version of the Jenkins Activity

Survey that is used with adults also has been developed (Yarnold, Bryant & Grimm, 1987) for use with older adolescents, and has a factor structure similar to that of the adult Jenkins Activity Survey.

The Bortner Adjective Rating Scale, a similarly developed measure utilizing a structured interview format for administration, has also been used to determine the relation of blood pressure to Type A behaviors in children (Bortner, Rosenman, & Friedman, 1970; Hunter et al., 1982; Wolf et al., 1979; 1981; 1982), as well as the relation of Type A behaviors to other measures such as assertiveness (Buck & Stenn, 1979). Further, both the Bortner Adjective Rating Scale and the Adolescent Structured Interview have been shown to have validity in terms of their relationship to the presence of components of pattern A in children. For example, Type As classified by the Adolescent Structured Interview self-reported greater anger and activity levels, and Type As classified by the Bortner Scale self-reported greater levels of persistence, competitiveness, and hardwork, as well as activity levels. However, the Adolescent Structured Interview and the Bortner Scale were found to have low concordance with each other and perhaps were measuring different components of the Type A pattern (Siegel & Leitch, 1981). As will be shown in a later section, the Bortner Test and the MYTH also have been found to differ in their relations to an

array of physiological measures (Lawler, Allen, Critcher, & Standard, 1981). The Adolescent Structured Interview and the MYTH have shown relatively greater correspondence with each other, however. A significant correlation of .42 between these measures has been reported (Matthews & Jennings, 1984).

It is clear that a number of measures have been developed on the bases of theoretical and empirical work examining adult risk behaviors for coronary heart disease and that they have been used to examine the relationship of Type A components to a variety of factors in children, such as physiological measures and specific behaviors in a variety of settings. However, caution is required when interpreting findings where the reliability and validity of the measure used to assess Type A behavior have not been established clearly. Further, little data exists to suggest that the variety of measures which have been used are assessing the same construct, and some of the data that exists is not encouraging (Lawler, Allen, Critcher, & Standard, 1981; Siegel & Leitch, 1981).

Type A Behaviors and Psychological and Behavioral Measures

The measures of Type A behavior in children described in the preceding section have been related to a variety of physiological, psychological and behavioral factors. The findings serve to provide further validation of measures

of Type A behavior, as most tasks are highly related to the Type A construct. The following is a summary of the findings of research on specific psychological and behavioral measures.

Efforts to Control. Matthews (1979) had both boys and men respond to variable ratio (uncontrollable) and fixed ratio (controllable) schedules of reinforcement (nickels), and varied the salience of the situations in which they responded. Salience of the situation was increased by increasing the lighting levels of the apparatus relative to the lighting levels in the experimental room, while low salience was achieved by reversing these lighting conditions. She found Type A boys (measured by teacher completed MYTH) outperformed Type Bs in highly salient, uncontrollable situations, although no differences were found for low salience or controllable situations. She interpreted these findings to suggest that salient threats to control for Type As result in more vigorous efforts to assert control by these individuals than it does for Type Bs. This finding was also replicated for male college students, classified on the basis of the Jenkins Activity Survey.

Competition and Efforts to Excel. Matthews and Volkin (1981) had Type A and B boys and girls (teacher MYTH ratings) perform arithmetic tasks with and without explicit time deadlines. Findings indicated that Type A

fourth grade boys and girls outperformed Type Bs when working either with or without explicit time deadlines, while Type Bs' performances were lower when there was no explicit time deadline. That is, the Type B children's performances were enhanced when they were given an explicit time deadline, while Type As performed better overall, regardless of explicit time deadlines. This suggests that Type A boys and girls adopted their own implicit time deadlines, even when explicit time deadlines were not provided. In the same report, a separate experiment using only sixth grade boys as subjects showed that Type A boys held a weight (a container filled with lead) for fifty percent longer than Type Bs. The weight of the container was based individually on each subject's assessed strength, thus the Type A boys made greater efforts to excel in conditions that were equally demanding of all subjects. Further, the Type A boys were also found to underreport the fatigue they were experiencing relative to the greater effort they were exerting by holding the weight for longer times. Thus, Type A boys were found to underreport the effort they exerted when no explicit performance standards were present, yet they made clearly greater efforts to excel in these situations.

Wolf et al. (1982) had a biracial sample of Type A and B boys and girls (measured by the Hunter-Wolf A-B Rating Scale) compete against an experimenter at dropping

marbles in a box. Both black and white children who were instructed that the task was a competitive one dropped more marbles than did children who were not told it was a competition, and Type A children dropped more marbles than did Type B children. These results were interpreted to suggest that Type A children were more competitive than Type B children, whether they were instructed to compete or not.

Similarly, Matthews and Angulo (1980) had second and sixth grade boys and girls race cars against male and female experimenters who moved their cars at constant rates. The Type A children (measured by MYTH ratings completed by teachers) won by the greatest margins when racing against a female experimenter, regardless of the sex or age of the child. These findings were also interpreted to reflect the competitiveness of Type A girls and boys. Collectively these findings suggest that Type A children exhibit strong efforts to achieve, excel and compete. Further, this pattern of achievement striving and competitiveness appears regardless of environmental demands to behave in this manner.

Siegel, et al (1981) found that adolescents (ages 13-18) who scored above the median score on the Harddriving factor of the Adolescent Structured Interview measure of the Type A behavior pattern also scored significantly higher on the Competitive scale of the

Edwards Personality Inventory. These findings also were interpreted as confirming the competitiveness component of the Type A behavior pattern.

Finally, Matthews and Jennings (1984) conducted Adolescent Structured Interviews with fifth grade boys and had them engage in competitive tasks in which they played a computer game of handball against the computer. Type A's showed greater elevations in their heart rates during this competitive game. Further, the more extreme the Type A levels demonstrated by the boys during the Adolescent Structured Interview, the greater were their elevations in systolic and diastolic blood pressure during a second handball game. These findings were discussed in terms of the sensitivity of physiologic responding to situationally induced competition for Type A children, and the implications of this physiologic responding for the development of coronary disease were explored.

Responses to Failure/Frustration/Challenge. Wolf et al. (1979; 1981) assessed goal blockage in children - which reflects "the extent to which the environment is perceived as a block to future advancement" - and related goal blockage scores to Type A behavior (measured by the Hunter-Wolf A-B Rating Scale). Interestingly, no significant relationship was found between these measures, nor with locus of control as measured by the 40-item Nowicki-Strickland Locus of Control Scale for Children.

Thus, Type A children did not perceive the environment to be in opposition to, or in support of, their efforts to excel, and similarly, these children reported neither excessive nor negligible beliefs about their abilities to control their environments.

Assertion. Buck and Stenn (1979) examined the relationship of the Rathus Assertiveness Scale and a measure of Type A behavior (measured by the Type A Activity Scale) to blood pressure in adolescents. They found these measures neither singly nor jointly accounted for observed blood pressure differences. Unfortunately, the relationship between the measure of assertiveness and Type A behavior was not reported. Hence, although assertiveness and Type A behavior were unrelated to blood pressure, it remains unclear whether these measures might be related to each other. Further, other authors have noted the non-utility of using blood pressure as a mediating risk factor for coronary heart disease (Lawler & Allen, 1981), hence these findings are capable of neither supporting nor refuting the validity of the Type A construct for adolescents, nor for clarifying the relationship between the Type A behavior pattern and assertiveness.

Self-concept. The Piers-Harris Self-Concept Scale was administered to a 10-17 year old biracial population of boys and girls, and its relation to the Type A behavior

pattern (measured by the Hunter-Wolf A-B Rating Scale) was reported in two studies. In an early report, low self-concept was significantly related to high ratings of Type A behavior for white students. This relationship was not found for black students, who also scored higher on self-concept and lower on Type A behavior overall than white students. This negative relationship between self-concept and Type A was contrary to expected findings based on the adult literature (Wolf, Hunter, & Webber, 1979). However, in a later report, self-concept again was found to be significantly and negatively related to scores on the Hunter-Wolf A-B Rating Scale for white girls and black boys (Wolf, Hunter, Webber & Berenson, 1981). Importantly, this replication draws attention to a consistent negative relationship between self-reports of self-concept and the Type A behavior pattern, thus indicating that Type A children may experience a lower self-concept than Type B children, rather than a higher self-concept as is found with adults.

Aggression. Matthews and Angulo (1980) validated the impatience-aggression subscale of the MYTH by reporting on differences between Type A and B second grade boys and girls in their observed levels of aggression. Aggressive behavior was defined as vigorous kicking, punching, or yelling at a Bobo doll. Type A boys and girls were found to aggress against the Bobo doll earlier than their Type B

counterparts, and boys earlier than girls. These results suggest that easily aroused aggression may indeed be a component of the Type A behavior pattern for children. Further, such findings are consistent with results reported for adults (e. g., Carver & Glass, 1978; Glass, Krakoff, Contrada, Hilton, Kehoe, Mannucci, Collins, Snow & Elting, 1980).

In another report, the Hunter-Wolf A-B Rating Scale was related to loudness of speech (Wolf et al., 1982). Type A boys and girls spoke significantly louder when instructed to read in an angry and upset manner than did Type B boys and girls. Further, those instructed to speak in this manner were louder than those instructed to read as if they were home alone in their own room, regardless of their classification as Type A or B. Hence, Type A children were more responsive to the "angry and upset" instruction than Type B children, providing further evidence for a more easily elicited potential for anger and hostility in Type A children.

Siegel et al. (1981) examined the relationship between adolescents' (ages 13-18) responses to the Adolescent Structured Interview (ASI) and the Edwards Personality Inventory (EPI) Anger scale. In this study, adolescents who scored above the median on the Impatience factor of the ASI also were found to score significantly higher on the EPI Anger scale. Thus, these impatient Type

A adolescents were more likely to self-report higher levels of anger than their less impatient peers.

Results reported by Boekeloo, Mamom, and Ewart (1987) for the Bortner Self-Rating Scale similarly show significant positive correlations between and ninth and tenth grade students' Bortner scores and their scores on the outward expression of anger component of the Spielberger Anger Expression Scale ($r=.33$). Type A adolescents classified by the Bortner scale did not differ from their Type B counterparts on the Spielberger "anger-in" dimension, however.

Finally, Corrigan and Moskowitz (1983) compared teacher's ratings of preschool boys and girls on the MYTH, and their ratings of the children's aggressive behaviors. Aggressive behaviors included verbal and physical expressions of an intention to hurt others, and attempts by the child to take other children's objects, or secure the equipment or play area of other children. They found highly significant correlations between the teachers' MYTH and aggressiveness ratings ($r=.70-.78$), thus providing strong evidence that Type A children indeed exhibit aggressive behaviors.

Impatience. Eating and walking speeds have been measured in fifth and sixth grade boys and girls as reflecting a behavioral sign of impatience in Type A children. Wolf et al. (1982) found Type A children ate

faster than Type B children and that Type A boys walked faster than Type B boys, although no differences were found between Type A and B girls in walking speed. Thus, for these measures some support has demonstrated that Type A children are indeed more impatient than Type B children.

Summary

Partial support has been demonstrated that the Type A behavior pattern is a valid psychological construct. For example, the following are all evidenced more by Type A children than Type B children: 1) efforts to exert control when salient threats to control exist, 2) achievement striving, efforts to excel and competitiveness, 3) a potential for more easily aroused anger and hostility, and 4) greater impatience. However, other evidence exists that the Type A behavior pattern is a weak and controversial construct. For example, it has been found that: 1) the environment is not perceived to be in opposition to Type A children's efforts to excel, 2) Type A children do not exhibit beliefs of extreme over- or under-control of their environments, and 3) surprisingly, Type A children have lower self-concepts than Type B children.

Indeed, two strong themes have been consistently evidenced in research on Type A children: first, they exhibit greater anger and aggression; and second, they

expend greater efforts to excel, compete, and achieve. Aggression and achievement striving are well-researched constructs in the field of psychology. Reviewing the evidence for the Type A construct, it seems plausible that this relatively new construct, shown in adults to be a potential risk factor for coronary heart disease, is a combination of these two previously established constructs of anger and achievement striving.

Before addressing this issue further, it is important to examine the relationship between measures of Type A behavior and physiological measures reflecting heightened autonomic nervous system arousal, and whether evidence exists in this arena for the Type A behavior pattern as a valid construct in children.

Type A Behavior and Physiological Measures

Lundberg (1983b) measured the blood pressure and heart rate levels of three to six-year old boys (rated on the MYTH by teachers) during standardized periods of rest, emotional challenge, and physical challenge. Results indicated that all children had significantly increased heart rates in both the emotional and physical challenge situations. Type A boys had greater increases in their systolic blood pressure than Type B boys during the physically but not during the emotionally challenging situation. No significant differences in heart rate

responding were observed between the Type A and B boys in either situation, however. These results were interpreted similarly to findings with adults as reflecting a "fundamental difference between Type As and Type Bs in terms of (conditioned) sympathetic reactivity" (pp. 41-42).

Lawler et al. (1981) used both the MYTH and the Bortner test to distinguish between Type A and Type B eleven and twelve year old boys and girls on a variety of physiological measures in three situations: a three-minute rest period, a ten-minute unsignalled reaction time task, and a ten-minute word task. Results showed the MYTH-classified Type A girls exhibited larger increases in blood pressure and heart rates in response to the reaction time and word tasks, a lower mean heart rate overall, and faster reaction times. These findings are all consistent with predictions based on physiological data with Type A adults. For MYTH-classified boys, however, only heart rates were higher, as the Type A construct would predict. These findings were interpreted to suggest that "the Type A behavior pattern is not accompanied by the same degree of sympathetic-like arousal in boys who have not yet reached puberty" (p. 214), in contrast to girls of the same age who are developmentally more mature. Type A children classified by the Bortner test also were found to have responses consistent with predictions based on work

with Type A adults (for example, Schneider et al., 1986), and these results were equivalent for boys and girls. They demonstrated a trend towards higher levels of systolic blood pressure and greater systolic blood pressure changes in response to the tasks. Further, significantly greater heart rates overall, greater heart rate changes in response to the tasks, greater heart rate variability during rest, and greater skin conductance response magnitudes in response to reaction time signals were found to exist for Bortner-classified Type A children. However, the authors provide a caution against the utilization of the Bortner test, in that these positive results were found only when the Type A scores were derived by weighting the labelled behavioral signs category of the test, a subjective counting of "Type A-like behaviors". Thus, both tests were able to identify Type A behaviors in eleven and twelve year old children with many of the associated physiological responses seen in adults, although the physiological measures were not consistently related to the two tests.

In contrast to these findings, Buck and Stenn (1979) found that ratings of Type A behavior (measured by the Type A Activity Scale) did not distinguish between hypertensive and normotensive adolescents. Further, they found that the Rathus Assertiveness Schedule, either alone or in combination with Type A measure, could not

distinguish between these two groups.

Another interesting report shows a lack of relationship between Type A behavior (measured by the Bortner test) in eleven to thirteen year old children and either family history of hypertension or the subjects' own blood pressure levels, again during unsignalled reaction time and word tasks (Lawler & Allen, 1981). Importantly, these authors distinguish between risk factors for coronary heart disease, and those for hypertension, which in itself is not considered a primary risk factor for coronary heart disease. Hence, these results demonstrate the non-utility of Type A measures in children for predicting hypertension, and it is suggested that there "are two separate factors, with perhaps different mechanisms, associated with coronary heart disease" (p. 204).

In a comprehensive risk factor study conducted in Bogalusa, Louisiana, the relationship between Type A behavior in children (measured by the Hunter-Wolf A-B Rating Scale) and a number of physiological measures has been examined. Physiological measures included height, weight, triceps skinfold, immediate systolic blood pressure, total chloolesterol, triglycerides, and various lipoproteins (Frerichs, Webber, Voors, Srinivasan & Berenson, 1979; Hunter et al., 1982; Voors, Foster, Frerichs, Webber & Berenson, 1976). Results demonstrated

no differences on any of the physiological measures between Type As and Bs based on total Hunter-Wolf scores. These negative findings were later replicated in a study by Weidner et al. (1986). However, for the Eagergy factor of the scale, differences were found in serum chloolesterol and triglycerides. Further, black boys and all girls who were high (Type A) on eagergy showed significantly higher systolic blood pressure than their low eagergy (Type B) counterparts. No significant differences in physiological measures were found, however, between high and low scorers on the remaining three factors of the scale (Restlessness, Involved/Serious, Hurriedness). These authors note the problematic nature of the Type A construct in children, and hence its inconsistent relation to physiological factors theorized to reflect the coronary heart disease risk the Type A construct is proposed to predict.

Finally, catecholamine and cortisol excretion of children during daily activities in a day-care center, and of children newly adjusting to the day-care setting, have been examined in three through six year olds and compared to levels obtained at home (Lundberg, 1983). Type A children (measured by the MYTH completed by teachers) did not differ from Type B children in the levels of cortisol or catecholamine secretion in either day-care condition, although secretion levels of adrenaline were higher at the day care center than at home for boys and girls. Further,

only noradrenaline levels were seen to increase in newly adjusting children during their first week at the day care center. These findings are interpreted in light of the literature showing adrenaline to be more sensitive than noradrenaline to emotionally stressing stimuli. Further, the observed lack of relationship between catecholamine levels and MYTH scores is interpreted to suggest "that behavior pattern is not the sole determinant of catecholamine output" (p.116).

Summary

In the physiological arena, controversial findings have been reported regarding the utility of the Type A construct in children. Evidence both supported and refuted the existence of a relationship between systolic and diastolic blood pressure levels and Type A behavior, and this evidence was not consistent in either rest conditions or in response to a variety of tasks. Further, heart rate data showed this inconsistent relationship to the Type A construct in children. Other measures of autonomic arousal also were examined. While skin conductance response magnitudes in response to tasks were greater for Type A than Type B children, no differences were found for cortisol or catecholamine secretion levels.

In light of the Type A behavior pattern's importance for predicting coronary heart disease risk, these findings

cast doubt on the early origins of the pattern and its relationship to physiological factors in childhood and adolescence.

Familial Factors and Type A Behavior

Another body of research has focused on examining the impact of familial factors on Type A behavior. In particular, the goal of this research is further elucidation of the development of the pattern, and exploration of the role of potentially important familial factors. Unfortunately, little of this work has examined the relationships (correlationally or interactively) between younger children and their parents, and instead has focused on college-age and older adults and their parents. However, such work is heuristic in suggesting heritable and environmental mechanisms of transmission of risk for coronary heart disease.

College-age sons of hypertensive parents have been found to exhibit different heart rates and blood pressure responses than the sons of normotensive parents (Manuck & Proietti, 1982). In particular, systolic blood pressure and heart rates of hypertensives' sons were significantly higher during rest, cognitive challenge, and isometric challenge situations. However, no differences were observed for diastolic blood pressure in any of the situations, and differential cardiovascular responding of the sons failed to differentiate between those with or

without a hypertensive parent. This link between parental history of hypertension and offsprings' differential cardiovascular responding suggests an inter-generational transmission of cardiovascular reactivity. However, the nature of this transmission mechanism is indeterminable from these findings.

In a study of normotensive college students with either a positive or negative family history of hypertension, comparisons were made on personality factors and cardiovascular responses to stress (Houston, Jorgensen, & Kilgren, 1984; Jorgensen & Houston, 1986). Similar to the above findings, subjects with a family history of hypertension who denied experienced affect evidenced greatest cardiovascular responses to provocation, and subsequently greater expressions of anger and aggression. The authors thus describe these normotensives as emotionally volatile, and they suggest a potential inherited transmission of sympathetic nervous system hyperreactivity.

Further examination of possible genetic components of Type A behavior has used twin studies. The subscales of the Jenkins Activity Survey (JAS) have been found to be correlated consistently and significantly for adult monozygotic twins while inter-correlations have been found to be less consistent for adult dizygotic twins (Matthews & Krantz, 1976). In particular, the Hard-driving,

Competitive factor of the JAS was suggested to have a moderate genetic component, although overall, the JAS Type A levels were not found to have a significant genetic component. Similarly, Matthews, Rosenman, Dembroski & Harris (in press) undertook a micro-analysis of particular Type A behaviors measured in the Structured Interview. They compared adult monozygotic and dizygotic twins and found some evidence for heritability of components of the Type A behavior pattern. In particular, the more temperamental factors, such as loudness of speech, competition for control of the interview, and potential for hostility were found to have heritable components. Other researchers have not found such positive heritability results, however. Rahe, Hervig, and Rosenman (1978) compared adult monozygotic and dizygotic twins and found no heritability for Type A behavior as measured by the JAS. They did find a heritable component for the Gough Adjective Checklist and noted its significant correlation with the JAS. Overall, these findings suggest a possible heritable component of cardiovascular risk, although the processes underlying the development of such risk remain to be more clearly identified.

In contrast to a genetic transmission of risk, others have suggested that psychological factors associated with coronary heart disease risk may develop through more psycho-social processes. Waldron et al. (1980) examined

post hoc reports of parenting by Type A and B male and female college students. Both male and female Type A students recalled their same sex parent as punishing them physically more often than their Type B counterparts. Type A men also recalled having been punished more severely, and being made to feel resentful rather than guilty more often by their fathers than their Type B counterparts. Thus, the contribution of parenting styles to the higher levels of anger and aggression observed in Type A adults suggests a possible environmental process for the development of the behavior pattern. Further evidence for this environmental hypothesis was suggested by the authors of a study of the similarity of Type A behaviors between fathers and their sons, who averaged in age at fifteen years (Bortner, Rosenman, & Friedman, 1970). Results showed that sons of Pattern A fathers also had significantly higher Pattern A scores. However, contrary to the environmental hypothesis, no evidence of a modelling influence by the fathers was suggested by further data which showed no significant relationship between the degree of perceived similarity for Type A fathers and their sons.

In a study of parents' aspirations for their children and the children's goal setting, 9-12 year old children were classified as Type A or Type B on the basis of Hunter-Wolf and MYTH scores. The results showed that

mother's aspirations for their children were unrelated to their children's levels of Type A behavior. Father's "Type A promoting attitudes" were associated with Type A behavior in their sons but not their daughters. In fact, fathers' higher aspirations for their daughters were significantly associated with more Type B behavior in their daughters. These findings were discussed in terms of the significance of modeling influences between fathers and their sons for the development of the Type A behavior pattern in the sons (Kliewer & Weidner, 1987).

A more comprehensive approach to understanding the development and maintenance of the Type A behavior pattern is seen in studies of bidirectional influences. Such a model suggests that individuals may interact with each other over time, influencing each other in a way that serves to maintain behavior patterns in each other. Evidence for such a bidirectional influence hypothesis for maintaining Type A behaviors has been suggested in studies of mother-child interactions (Copeland, Reiner, & Eisenstein, 1984, Matthews, 1977). These studies revealed that Type A mothers interacted differently with their children than Type B mothers, and also that the mothers' behaviors were differentially influenced by the behavior patterns (Type A or B) of their children. Thus, such a transactional influence allows for a reconceptualization of the distinction between environmental and genetic

factors, and has potential for more accurately describing a complex process resulting in the high risk for coronary heart disease associated with the Type A behavior pattern.

Summary

Studies of familial factors are as yet inconclusive about the role of various environmental and genetic causes of the Type A behavior pattern. Indeed, given the difficulty seen in the physiological, psychological and behaviorally based studies, this is not surprising.

Conclusions

The study of the Type A behavior pattern in children is indeed perplexing. Measurement of the pattern has been found to be reliable and internally valid in most instances, although different measures have not been found to be highly related to each other. Evidence for the concurrent validity of the construct is somewhat mixed, and most of this evidence comes from observations of highly specific, albeit important, behaviors in a wide variety of situations. Further, the Type A behavior pattern in children has not been consistently related to physiological response measures in childhood, thus bringing into question its predictive value for adult coronary heart disease. Although similarities in the Type A behavior pattern between parents and their offspring

exist, the reasons for this similarity are not clear, and neither a genetic nor environmental mechanism of transmission has been shown to be exclusively operative.

Given this state of affairs, a reconceptualization of the Type A construct in children may be in order. Perhaps the construct is not as valid for children as it is for adults. Further, other related constructs may be found to be more important as early bases for the Type A behavior pattern in adulthood.

Although physiological data is not conclusive, it suggests that there exists some important precursor to the adult Type A behavior pattern and its associated risk for coronary heart disease. It is essential that we focus on the important behaviors in childhood. Whether or not these are reflected by the Type A construct or a combination of other related constructs ultimately must be determined longitudinally. However, the uniqueness of the Type A behavior construct in children needs to be established empirically for such data to be obtained and deemed useful for explaining the development of the Type A behavior pattern as it is evidenced in adulthood.

The relationship of the Type A behavior pattern to other theoretically important constructs has not been established. For example, achievement motivation, anger, and aggressiveness appear to be highly related to the Type A behavior pattern in children. Indeed, evidence for

concurrent validation of the pattern is most consistent for behaviors which seem to reflect these alternate constructs. Comparisons between measures of each of these constructs and measures of Type A are necessary to avoid re-creating the past. That is, it is not possible to conclude from data in existence that the Type A behavior pattern in children is distinguishable from "older" constructs such as achievement motivation or anger and aggression. A brief consideration of these alternate constructs is now in order.

Achievement Motivation

According to Nygard and Gjesme (1973), and in accordance with the theories of Atkinson and McClelland, "the achievement motive can be regarded as a personality characteristic in terms of a capacity to anticipate pleasure or pain in achievement situations" (p.40). Although considered a stable characteristic, arousal of the achievement motive is predicted to occur in situations in which either success or failure seem equally possible. Further, the presence of the motive is most dependably indicated by the manifestation of affects (i.e., pleasure or pain) in conjunction with evaluated performance (Christophersen & Rand, 1982), and presumably should involve competitive behavior with a standard of excellence (Castenell, 1983).

The Achievement Motives Scale (AMS: Nygard & Gjesme, 1973) was developed on these theoretical bases and as an alternative to projective measures having poor reliability and validity (e.g., the Thematic Apperception Test). Accordingly, it focuses on affects associated with motives to approach success (Ms) and motives to avoid failure (Mf). This self-report measure consists of thirty items assessing affects in conjunction with achievement situations; fifteen items reflecting Ms and fifteen items reflecting Mf. This measure overcomes problems described in previous measures (Nygard & Gjesme, 1973). For example, the AMS does not use a forced choice format, so that strengths of different motives are not pitted against each other on an a priori basis. Second, the AMS assesses affects rather than behavioral outcomes of affects. Circularity thus is avoided, as the motive is not measured by a criteria it is assumed to predict. Further, the motive is measured in general terms, rather than in specific (e.g., school) situations, so that the resulting scores are generalizable rather than restricted to a certain setting. Finally, assessment of both dimensions (Ms and Mf) of achievement motives allows for more fine-grained analyses of the motives (Gjesme, 1983). For example, an individual may be high both on motives to approach success and avoid failure, resulting in a "conflict motivated" orientation. High scores on Ms with

low scores on Mf is an approach orientation to achievement, while high scores on Mf with low scores on Ms is an avoidance orientation to achievement. Finally, indifferent orientations to achievement are reflected by low ratings on both Mf and Ms items.

Validation evidence for use of the AMS to assess achievement motives is excellent. Christophersen and Rand (1982) administered the AMS to two separate sixth grade samples in Oslo and Drammen, Norway. They found both factor analyses and correlations between the subscales supported that the Ms and Mf subscales to a large extent measured different variables.

Rand (1977) administered hard and easy anagram, synonym, antonym and addition tests to male and female sixth graders. He found high Ms and low Mf scorers on the AMS had higher performance scores on these experimental tests than low Ms or high Mf scorers. Further, the greatest differences in performance between these groups were found for tasks at a medium level of difficulty. Thus, these motivation scales were associated with actual performance, and as theory predicted, Ms facilitated performance and Mf inhibited performance, especially on tasks of moderate difficulty. Finally, it was also found that correlations between the AMS and a lie-defensiveness scale were low, thus indicating a low susceptibility for faking on the AMS.

Gjesme (1983) examined the effect of achievement motives on worry and emotionality related to school performance in sixth grade boys and girls. He found that as the perceived importance of school activities increased, so increased the influence of achievement motives on levels of worry and emotionality.

Finally, Nygard (1982) examined situational responsivity of achievement motivation in seventh grade boys and girls. Persistence (in time) at three tasks of varying difficulty (copying figures-easy, mazes-moderate, and anagrams-hard) was measured for high and low scorers on the motives to approach success and motives to avoid failure items of the AMS. He found that boys and girls who were achievement oriented (Ms greater than Mf) varied more in their levels of persistence across the varying levels of difficulty of the tasks than the failure threatened (Mf greater than Ms) boys and girls. Thus, congruent with theory, the achievement oriented children were more responsive to situational variations in possibilities for success or failure than the failure threatened children.

While the Achievement Motives Scale has been shown to be a valid and fruitful measure of achievement motivation in children, all studies regarding this scale have been conducted on samples of children outside of the United States and the scale is not readily available for use

within the United States. Other measures used on American children show adequate validity for assessing achievement issues in children. For example, the Culture-Free Self-Esteem Inventory consists of a number of scales related to children's perceptions of self-worth. The achievement scale of the SEI contains items pertaining to self-esteem in academic achievement-related situations. Children respond in a yes/no format to items, and total scores of overall self-esteem levels measured by the SEI have been found to be negatively related to depression, and positively related to children's perceptions of their abilities. Most relevant for the current discussion, children earning high scores on the SEIA were also found to be academically more successful (Battle, 1981). Also tapping achievement orientation, the Intellectual Achievement Responsibility Questionnaire (IAR) was developed and validated by Crandall, Katkovsky and Crandall (1979). Like the AMS, the IAR assesses children's beliefs in responsibility for achievement in both success and failure situations, and is based on the same theoretical principles as the AMS.

Inasmuch as the efforts to excel, achieve, and compete by children classified as Type A reflect achievement orientation, one might expect Type A children to report higher levels of achievement orientation than Type B children. Both the SEIA and IAR will be used in

the present study to assess children's self-reports of achievement orientation, and the relationship between these measures, as well as teacher ratings of children's achievement orientations, and Type A measures will shed light on the relative importance of achievement-orientation for understanding Type A behavior.

Anger

Anger is a subjective emotional state, which may be elicited by a variety of internal cues and external circumstances. It cannot be equated with aggression, as aggression is but one option available for expressing anger, and aggression may also be evidenced without significant contributions of anger. Thus, anger is most appropriately measured through subjective reports.

Finch and Rogers (1984) reported on a self-report measure of anger developed by Finch, Saylor and Nelson (1983). The Children's Inventory of Anger (CIA) is a 71-item measure which was compiled by interviewing children about what makes them angry. Children administered the CIA are asked to rate how each statement would make them feel by rating their levels of anger on a 4-point scale (aided by stick-figure faces as scale anchors).

Reliability and validity data for the CIA scale are encouraging, yet limited. Hospitalized children ranging in age between 9-15 years were administered the CIA

individually, and test-retest reliability for the CIA over a three month period was .82. Split-half reliability ranged between .90-.99, depending on the method of calculation, and internal consistency, calculated using the alpha coefficient, was .96 (Finch & Rogers, 1984). Thus, the CIA has been shown to be a reliable and homogeneous measure of anger in children.

Validity data for the CIA was reported by Finch and Eastman (1983). Hospitalized children were administered the CIA, and peer reports and teacher reports of anger problems for these children were collected, as well as ratings of the children's anger problems at the time of their admission to the hospital. Peer ratings of anger and the anger problems at admission ratings were related significantly and positively to the children's self-reports of anger on the CIA. Although teacher ratings were unrelated to the CIA and the anger problems at admission ratings, they were significantly correlated with peer ratings. However, Finch and Rogers (1984) reported significant positive correlations between children's CIA scores and the acting-out factor of the teacher completed Walker Problem Identification Checklist.

Thus, the CIA has been shown to be a valid measure of children's anger, although the possibility that children appear different in contrasting environments was considered.

Diamond (1982) reviewed the literature on Type A in adults, and concluded that the hostility component of the Type A behavior pattern is more strongly predictive of coronary heart disease incidence and physiological reactivity than other components of Type A. As discussed previously, the hostility component of Type A in children also emerges as a potent factor affecting their behavior. Insofar as the CIA assesses children's anger, it might be predicted that the CIA would be highly related to measures of Type A behavior in children.

Purpose

The present study was conducted to address several important questions raised by a review of the literature on Type A behavior in children. First, the relationship between measures of Type A in children has not yet been determined consistently. In the present study, correlations between different methods of measuring Type A will be determined, hence providing data regarding the convergent validity of Type A. Second, a consistent theme detected throughout the literature is the similarity between Type A behavior and other constructs including anger/aggression as well as achievement orientation. The present study will address the concurrent validity of Type A by examining the relationships between different methods of assessing Type A and different methods of assessing

both anger/aggression and achievement-orientation. Third, most perplexing theoretically is the issue of the discriminant validity of Type A. That is, is Type A indeed distinguishable from these other constructs? To address this issue, correlations between Type A measures will be compared to correlations between Type A and anger/aggression and achievement orientation. To further clarify the issue of the discriminant validity of Type A, intercorrelations of Type A measures will be compared to correlations between Type A and a theoretically distinct construct (i.e., depression). Thus, the present study will examine the construct validity of Type A by employing the multi-trait, multi-method construct validation strategy (Campbell & Fiske, 1959). Of final interest will be an examination of what measures of what constructs, both within and across method of measurement, are capable of predicting Type A as assessed by teacher-ratings, self-reports, and behavior observations.

METHOD

Subjects

The participants were 132 boys and girls in the fifth grade in four elementary schools in Southwest Virginia. Table 1 presents descriptive data for the subject sample. The children ranged in age from 10 to 13 years ($X=11$, $S.D.=.74$) at the time of testing. On the average, these children described their families as consisting of three children (range 1-7 children), including one older sibling (range 0-6 siblings) and one younger sibling (range 0-4 siblings). In addition, on the average these children reported starting elementary school at their present school in the first grade, indicating a relatively stable population for this area.

Parent permission for children's participation in individually administered assessment sessions was obtained through phone calls and letters. Additionally, each child provided informed consent for his/her participation in classroom-wide and individual assessment sessions. No parent permission was obtained for measures completed on or by all children in a classroom. This procedure is acceptable to local school authorities, as no child is distinguished as "different" in the eyes of their classmates. Table 2 shows there were no significant differences on any of the teacher- or classroom-

administered tests between children whose parents gave or denied permission for their child to participate in the individual assessment session.

Measures

Type A behavior. The teachers of the subjects were given the MYTH to complete on all children in their respective classes. A total of 131 MYTH scales were returned by the teachers. Adequate test-retest reliability data for the MYTH has been reported, and the scale has been shown to be internally consistent (Matthews & Angulo, 1980).

Additionally, numerous studies have attested to the validity of the MYTH for assessing components of the Type A behavior pattern in children (e.g., Matthews & Angulo, 1980; Matthews & Volkin, 1981). The MYTH consists of 17 statements that characterize overt behaviors also descriptive of Type A adults: competitive achievement striving, impatience, aggressiveness, and easily aroused hostility. Teachers provide ratings on a 5-point scale as to how characteristic each statement is of a child's behavior. Sample statements reflecting the two MYTH subscales of impatience-aggression and competitive achievement striving, respectively, are: (a) "This child gets irritated easily" and (b) "When this child plays games he/she is competitive." Ratings on all items were summed to obtain a total Type A score, and the two

subscale scores of impatience-aggression and competitive achievement striving were also determined. Total Type A scores ranged between 25 (Type B) and 72 (Type A) with a possible range of 17 to 85. The impatience-aggression subscale scores ranged between 11 and 41 (with a possible range of 9 to 45) and competitive achievement striving subscale scores ranged between 10 and 36 (with a possible range of 8 to 40). Total MYTH scores for boys and girls in the present sample had a mean of 48 (S.D.=10). This figure is comparable to total MYTH score means for boys (X=52) and girls (X=46) reported by Matthews and Angulo (1980).

The Hunter-Wolf A-B Rating Scale was administered to children during an in-class assessment session. This measure has been judged to be reliable and to yield four factors in a principle components factor analysis: eagerness-energy (eagergy), restlessness-aggression, leadership, and alienation (Wolf et al., 1982). The A-B Rating Scale consists of 24 self-anchoring scales each in the form of a seven rung ladder. Each item reflects components of the Type A behavior pattern as it has been assessed in adults. A sample item of the A-B Rating Scale is "I think about many things at the same time---I think about one thing at a time". The child is asked to describe where he/she is on the ladder most of the time for each item. Ratings of all items were summed to

provide a total Type A score for each child which ranged between 47 and 129 (with a possible range of 24 to 168). Total Hunter-Wolf scores for boys and girls in the present sample had a mean of 95 (S.D.=15). This figure is comparable to results reported by Wolf et al. (1981) for a shorter version (17 item) of the Hunter-Wolf. Mean Hunter-Wolf scores from this previous report ranged between 61 and 64. Unfortunately, means for the 24 item Hunter-Wolf used in subsequent studies as well as this study have not been reported.

The Children's Type A Interview was administered to 62 children in an individual assessment session and audio-recorded for later scoring. Test-retest reliability in discriminating Type As and Type Bs has been reported to be .91 (Gerace and Smith, 1982). Administration of the Children's Type A Interview is modeled in content and form after the Adult Structured Interview (Chesney, Eagleston, & Rosenman, 1980). That is, questions pertaining to competitiveness, impatience, hostility and ambition are presented in a standardized, engaging style. The contents of the Interview are presented in the Appendix. Interviewee's responses have been scored primarily on the basis of voice stylistics (e.g., speed, loudness and emphasis of speech); the content of responses has been given lesser importance in scoring the interview. Speech stylistics were scored overall on a 5-point scale

(extremely Type A=1, absence of Type A characteristics=5). Reliability of scoring Type A versus Type B speech stylistics has been found to be .73 (Gerace & Smith, 1982).

In the present study, the inter-rater reliability for judging overall Type A speech stylistics was determined by calculating a Pearson product-moment correlation coefficient between the two raters' judgements on 50% of the interviews. This produced an inter-rater reliability coefficient of .81 for overall Type A speech stylistics ratings. In addition, 12 elements of each child's speech style in response to the interviewer's standardized questions were scored in the present study (See Appendix). Each child's 12 types of interview responses were scored on a Type A(0) versus Type B(1) basis, and a total response style score was obtained by summing the 12 response style item scores. Type A Interview Response Style scores ranged between 1(Type A) and 12(Type B). Inter-rater reliability for Response Style scores was determined by dividing the number of agreements between the raters on the 12 elements of response style by the total number of agreements and disagreements between raters. This produced a inter-rater reliability coefficient of .80 for Response Style scores for the Type A Interview. The independent rater was instructed to distinguish any interviews during which the

interviewer's rate, loudness, or overall emphasis of speech sounded different. Importantly, the independent rater was unable to distinguish any interviews in which differences could be detected in the interviewer's speech characteristics during the Type A interview. Because only one interviewer conducted all of the Type A Interviews, fine grained analyses of the interviewer's verbal behavior were not pursued in this study.

Anger. The Children's Inventory of Anger (CIA) was administered to children during the in-class assessment session. Reliability and validity for this measure have been judged to be adequate (Finch and Eastman, 1984; Finch and Rogers, 1984). The CIA consists of 71 items describing situations which potentially elicit children's anger. Sample items include (a) "You tell your mom that you don't have any homework but she makes you study anyway" and (b) "Someone in class acts up so the whole class has to stay after school". Children rated how angry each statement would make them feel on a 1-4 scale anchored by stick figures representing increasing facial expressions of anger. Children's ratings on all items were summed to provide total anger scores which ranged between 91 and 284 (with a possible range of 71 to 284). The CIA scores for boys and girls in the present sample had a mean of 215 (S.D.=36). Previous published studies for the CIA have not reported mean scores.

Teachers also provided ratings of all children's aggressive behaviors. The Aggressiveness scale of the AML (Cowen et al., 1973; Dorr et al., 1980) consists of 5 items reflecting aggressive behaviors. Although an indirect measure of anger, aggressive behavior is proposed as a component of the Type A pattern, and is an option for the expression of anger. Teachers rated each child on how often they observed each behavior for a child on a 1-5 point scale (1=never, 5=frequently). Ratings were summed across the items to provide total aggressiveness scores which ranged between 5 and 23 (with a possible range of 5 to 25). AML Aggression scores for the present sample had a mean of 10.6 (S.D.=4.8). This figure is comparable to results reported by Dorr et al. (1980). The boys' mean AML Aggression score in that sample was 11.7; the girls' was 8.7.

Achievement Orientation. Two self-report measures were used to assess children's perceptions of their own achievement orientation. The Self-Esteem Inventory for Children Academic Scale Form B (SEIA) is composed of items pertaining to a child's feelings of esteem regarding achievement issues in the academic setting (Battle, 1981). Test-retest reliability correlations for the SEIA Form B have been found to range between .79 and .92 for boys and girls in grades three through six; internal consistency for the achievement-oriented Academics subscale is judged

to be adequate (coefficient alpha=.67). Examples of items on the SEIA are "I usually quit when my schoolwork is too hard", and "Most boys and girls are smarter than I am". Children responded yes/no to items, and a total Achievement score was derived by summing responses to items indicating self-esteem in achievement/academic settings. Total scores for the SEIA ranged between 0 and 5 (with a possible range of 0 to 5). The mean SEIA score for the current sample was 3.71 (S.D.=1.4). This figure is quite comparable to the mean SEIA score of 3.91 (S.D.=1.3) reported by Battle (1981) for boys and girls in grades three through six. Higher scores for this measure are thus reflective of higher academic achievement self-esteem.

In addition to the SEIA, children were also administered the Intellectual Achievement Responsibility Questionnaire (IAR) (Crandall, Katkovsky and Crandall, 1979). The IAR is composed of 34 forced-choice items tapping responsibility in achievement settings for both successes and failures. Examples of IAR items include "Suppose you became a famous teacher, scientist, or doctor. Do you think this would happen: (a) because other people helped you when you needed it, or (b) because you worked very hard," and "Suppose you're not sure about the answer to a question your teacher asks you and the answer you give turns out to be wrong. Is it likely to

happen: (a) because she was more particular than usual, or (b) because you answered too quickly?" Test-retest reliability across a two month interval for children in grades 3, 4 and 5 was judged to be adequate, based on correlations ranging from .66 to .74, and no significant sex differences have been found. In addition, adequate internal consistency has been determined by split-half reliability coefficients for the success items of .54 and for the failure items of .57. IAR scores ranged between 9 and 30 (with a possible range of 0 to 34). This range of scores is comparable to results obtained by Crandall et al. (1979). In addition, the mean IAR score of 22.5 (S.D.=4.4) for the present sample is comparable to the similarly high mean of 24.2 (S.D.=3.8) reported by these authors.

Finally, teachers also provided ratings of children's achievement-orientation. The Achievement Anxiety and Need Achievement subscales of the Devereux Elementary School Behavior Rating Scale were given to the teachers to complete on children in their classes (Spivak & Swift, 1966; 1977). The two subscales together are composed of a total of 7 items. The validity of the resulting Achievement subscale was determined by Spivak and Swift (1966), and test-retest reliability coefficients of .85 have been reported (Swift & Spivak, 1967). Examples of items from this subscale include "To what degree is this

child concerned about getting good grades" and "How often does this child try to outdo classmates by producing more in quantity." "How often" questions were scored on a 5-point scale assessing frequency of occurrence, while "To what degree" questions were scored on a 7-point scale indicating the degree to which the behavior is true of the child. The range of scale anchors was from "Never" or "Not at all", to "Very Frequently" or "Extremely". Total Devereux Achievement scores were obtained by summing the teacher's ratings on the items, and the total Devereux Achievement scores ranged between 7 and 36 (with a possible range of 7 to 39). A comparison of the Devereux Achievement Anxiety subscale mean of 11.6 (S.D.=4.0) for the current sample with the mean of 10.0 (S.D.=4.3) reported by Spivak and Swift (1967) for fifth graders reveals that the Devereux scores of the current study are similar to those previously reported.

Depression. Similar to preceding constructs, both self-report and teacher-rating measures of children's depression were administered. The Children's Depression Inventory (CDI) is a 27 item forced-choice instrument composed of statements reflecting behaviors associated with depression in children. Included are items pertaining to withdrawal ("I like being with people", "I do not like being with people many times", "I do not want to be with people at all"), mood ("I am sad once in a

while", "I am sad many times", "I am sad all the time"), and aggression ("I get along with people", "I get into fights many times", "I get into fights all the time"). Ratings for each forced-choice item are scored 0, 1 and 2 and summed to provide a total depression score. Higher scores indicate higher levels of depression. Total scores on the CDI ranged between 0 and 39 (with a possible range of 0 to 54). The mean CDI score for the current sample was 11.6 (S.D.=9.4). This figure is comparable to the mean CDI score of 10.1 (S.D.=8.1) for fifth grade boys and girls reported by Finch and Edwards (1983).

In addition, teachers provided ratings of children's depression levels. The Inconspicuousness and Inattentive-Withdrawn subscales of the Devereux Elementary School Behavior Rating Scale were given to teachers to complete on children in their classes (Spivak and Swift, 1966). The two subscales together are composed of a total of 6 items. The validity of the resulting depression subscale was determined by Spivak and Swift (1966); a test retest reliability coefficient of .89 has been reported (Swift & Spivak, 1967). Examples of items from the resulting Devereux Depression subscale include "How often does this child make him/herself inconspicuous in class," and "To what degree is this child slow in physical movement." "How often" questions were scored on a 5 point scale dealing with frequency of occurrence, while "To what

degree" questions were scored on a 7 point scale indicating the degree to which the behavior is true of the child. Total depression scores were obtained by summing the teacher's ratings on the subscales, and resulting total Devereux Depression scores ranged between 6 and 36, with a possible range of 6 to 38. A comparison of the Devereux Inattentive-Withdrawn subscale mean of 8.2 (S.D.=3.7) for the current sample with the mean of 9.4 (S.D.=4.6) reported by Spivak and Swift (1967) for fifth graders reveals that the Devereux scores of the current study are similar to those previously reported.

Procedure

All assessment procedures were conducted on school property during regular school hours. During the last month of the academic year, the teachers were given the MYTH, Devereux scales and AML to complete on all students in their fifth grade classes.

All children were administered the CIA, CDI, IAR, SEIA and Hunter-Wolf A-B Rating Scale in their classrooms in a session which occurred within one to two weeks of the teachers' completion of the MYTH, Devereux, and AML. These in-class assessment sessions were completed in 35-45 minutes each. All directions and items were read aloud to the children so that subjects' reading abilities would not affect their ability to respond to written questions.

Out of the 132 children in the study, parents of 66 children (50%) returned forms giving permission for their children to participate in the Type A Interview session. These children were escorted individually by the investigator from their classes each within one to two weeks after their in-class assessment sessions. These individual Type A Interview sessions were conducted by the investigator in a small room near the children's classrooms, lasted approximately 10-15 minutes each, and were audio-recorded for later scoring. The interviewer was blind to the children's scores on other Type A measures at the time of the interview. Chairs for the interviewer and child were placed facing each other approximately four feet apart. Each child's consent to participate in the interview was obtained. The microphone then was attached to the child. The microphone was attached to a standard length (22") cord which hung around the child's neck so that later scoring of speech stylistics would not be affected by the distance of the microphone from the child. An audio tape recorder was then activated, and the interview proceeded.

All self-report and teacher-rating measures were scored by the investigator after all data had been collected. An undergraduate assistant scored all of the interviews, and the investigator scored 50% of the interviews to allow for determination of inter-rater

reliability.

RESULTS

Construct Unity: Evidence for Convergent Validity

Intercorrelation of Overall Type A Scores

Correlations between different methods of measuring the Type A Behavior pattern provide support for construct unity. Table 3 displays Pearson product-moment correlations between the Type A measures and subscales. The MYTH teacher-rating measure total Type A scores and the Hunter-Wolf self-report measure total Type A scores correlated significantly ($r=.33$). MYTH total Type A scores also were significantly correlated with Type A Interview ratings of Speech Stylistics ($r=-.36$) and Response Style Scores for the Type A Interview ($r=-.44$). Likewise, Hunter-Wolf total scores were significantly related to Type A Interview ratings of Speech Stylistics ($r=-.26$); however, Response Style scores for the Type A Interview did not correlate significantly with Hunter-Wolf total Type A scores ($r=-.23$).

Intercorrelations of Type A Subscale Scores

Among the subscales of the MYTH and Hunter-Wolf and the Type A Interview measures, other interesting patterns were found, suggesting differential measurement of components of the Type A Behavior Pattern for the three methods of measurement.

MYTH Impatience-Aggression subscale scores correlated

significantly with total Hunter-Wolf scores ($r=.36$), Hunter-Wolf Restlessness-Aggression subscale scores ($r=.40$), Hunter-Wolf Eagergy subscale scores ($r=.28$), and Response Style scores for the Type A Interview ($r=-.34$), suggesting concurrence of measurement between the Hunter-Wolf and the MYTH for the impatience/aggression/hostility component of the Type A construct. For the competitiveness/achievement-striving component of the Type A construct, similar concurrence of measurement was found. The MYTH competitiveness subscale correlated significantly with the Hunter-Wolf leadership subscale ($r=.23$), significantly and negatively with the Hunter-Wolf Alienation subscale ($r=-.22$) and significantly with both Speech Stylistics ratings and Response Style scores for the Type A Interview ($r=-.33$, and $r=-.37$, respectively).

Interestingly, both the MYTH and the Hunter-Wolf appear to assess the impatience/aggression/hostility component of the Type A construct more robustly than the competitiveness/ achievement-striving component. MYTH total Type A scores correlated significantly with MYTH Impatience-Aggression subscale scores ($r=.86$) as well as Hunter-Wolf Restlessness-Aggression and Eagergy subscale scores ($r=.34$, and $r=.26$, respectively). Likewise, Hunter-Wolf total Type A scores correlated significantly with Hunter-Wolf Restlessness-Aggression and Eagergy subscale scores ($r=.83$, and $r=.67$, respectively) as well

as MYTH Impatience-Aggression subscale scores ($r=.36$). However, MYTH total Type A scores, although correlated significantly with MYTH Competitiveness subscale scores ($r=.81$), did not correlate significantly with Hunter-Wolf Leadership subscale scores ($r=.07$). Hunter-Wolf total Type A scores also did not correlate significantly with either Hunter-Wolf Leadership subscale scores ($r=.12$), or MYTH Competitiveness subscale scores ($r=.17$).

Type A Interview Speech Stylistics ratings and Response Style scores correlated significantly with the overall Type A scores of the other measures, but they did not show the same differential measurement of the Type A components as did the Hunter-Wolf and MYTH. Speech Stylistics ratings correlated significantly with Response Style scores ($r=.93$) and with Hunter-Wolf and MYTH total Type A scores ($r=-.26$, and $r=-.36$, respectively). Response Style scores were correlated significantly only with MYTH total Type A scores ($r=.44$) but not with Hunter-Wolf total Type A scores ($r=-.23$). Compared to the MYTH and Hunter-Wolf, the Type A Interview appears to assess more robustly the competitiveness/achievement-striving component of the Type A construct than it does the impatience/aggression/hostility component. The Speech Stylistics ratings and Response Style scores for the Type A Interviews both were correlated significantly with only the Leadership subscale of the Hunter-Wolf ($r=-.38$, and

$r = -.26$, respectively), and both also were correlated significantly with the MYTH competitiveness subscale ($r = -.33$, and $r = -.37$, respectively). Only the Response Style scores of the Type A Interview were correlated significantly with the MYTH Impatience-Aggression subscale ($r = -.34$). These findings are similar to those of Smith and Gerace (1983), who found Type A Interview ratings to be correlated significantly with the Competitiveness and overall Type A scores of the MYTH but not Impatience/Aggression scores.

Convergent Validity--Summary

In summary, the three methods of measuring Type A were all significantly inter-correlated, supporting the convergent validity of the Type A construct. The three measures used in this study seem to assess more robustly different components of the Type A construct, however. The MYTH (teacher-rating method) and Hunter-Wolf (self-report method) appear to tap the impatience/aggression/hostility component of Type A, whereas the Type A Interview (behavior rating method) appears to tap the competitiveness/achievement-striving component of Type A. Further evidence for the strength of the components of the Type A is provided by examining the correlations of the Type A measures and subscales with separate measures of similar constructs.

Construct Components: Evidence for Concurrent and Discriminant Validity

Impatience/Aggression/Hostility-Concurrent Validity

Two different methods of measuring children's anger/aggressiveness were used: The Children's Inventory of Anger (CIA), a self-report measure, and the Aggressiveness subscale of the AML, a teacher-rating measure. Pearson product-moment correlations between these measures and the Type A measures and their subscales can be found in Table 4. The CIA was found not to correlate significantly with any of the Type A measures nor their subscales. Aggressiveness subscale scores of the AML were correlated significantly with both MYTH total Type A scores ($r=.63$) and the Hunter-Wolf total Type A scores ($r=.30$). AML Aggressiveness subscale scores also were correlated significantly with MYTH Impatience-Aggression subscale scores ($r=.84$), Hunter-Wolf Restlessness-Aggression subscale scores ($r=.37$) and Hunter-Wolf Eagery subscale scores ($r=.30$). This finding provides some evidence that the Aggression/Hostility construct is important for explaining Type A behavior as it is measured by both the MYTH and Hunter-Wolf. Interestingly, Speech Stylistics ratings and Response Style scores for the Type A Interview did not correlate significantly with AML Aggressiveness subscale scores ($r=-.20$, and $r=-.24$, respectively), thus providing further evidence that the Type A Interview did

not tap the impatience/aggression/hostility component of Type A as did the MYTH and Hunter-Wolf.

Impatience/Aggression/Hostility-Discriminant Validity

Correlations between different methods of measuring the Type A construct and its components can be compared to correlations between Type A measures and similar methods of measuring other constructs to determine the discriminant validity of the Type A construct and its components from other constructs. This multi-trait multi-method strategy has been described by Campbell and Fiske (1959). To test the significance of the differences between these non-independent r 's, Hotelling's t values were calculated (Edwards, 1960).

In regards to the impatience/aggression/hostility component of Type A, results indicate that the Type A construct, as measured by the MYTH and Hunter-Wolf, does not achieve consistent discriminant validity from the anger/aggressiveness construct. Hotelling's t values for relevant comparisons can be found in Tables 5 and 6. The correlation between total Type A scores on the MYTH and Hunter-Wolf ($r=.33$) was significantly less than the correlation between teacher ratings for the MYTH total Type A scores and teacher ratings of children on the Aggression scale of the AML ($r=.63$). Additionally, the correlations of MYTH Impatience-Aggression subscale scores with Hunter-Wolf Restlessness-Aggression subscale scores

($r=.40$) and with Eagergy subscale scores ($r=.28$) were significantly less than the correlation of MYTH Impatience-Aggression subscale scores with teacher ratings of children on the Aggression scale of the AML ($r=.84$). Thus, the teacher-rating MYTH was more correlated to the teacher rating method of measuring the anger/aggression construct than it was to the self-report method of measuring the Type A construct.

Conversely, the self-report Hunter-Wolf scores were more correlated to the teacher-rating method of measuring the Type A construct (MYTH) than they were to a self-report measure of the anger/aggression construct. Specifically, the correlation between total Type A scores on the Hunter-Wolf and MYTH ($r=.33$) was significantly greater than the correlation between children's self-reports of their overall degree of Type A behavior on the Hunter-Wolf and their levels of anger on the CIA ($r=.07$). Furthermore, correlations for the self-report Hunter-Wolf Restlessness-Aggression and Eagergy subscales with the MYTH Impatience-Aggression subscale ($r=.40$ and $r=.28$, respectively) were significantly greater than those with the CIA scores ($r=.16$ and $r=.01$, respectively).

Impatience/Aggression/Hostility-Summary

In summary, significant correlations between teacher-rating (MYTH) and self-report (Hunter-Wolf) methods of assessing the Type A construct and it's

impatience/anger/hostility component support the concurrent validity of Type A and this component of Type A. Findings for the Type A Interview, a behavior observation method of assessing the Type A construct, do not support the concurrent validity of this component of Type A, however.

Support for the discriminant validity of Type A and its impatience/aggression/hostility component from the separate Anger/Aggression construct is mixed, however. Results for the MYTH do not support this discriminant validity, however Hunter-Wolf results are supportive of discriminant validity.

Competitiveness/Achievement-Orientation--Concurrent Validity

As with the impatience/aggression/hostility component of Type A, correlations between other measures of the competitiveness/achievement-orientation construct and Type A measures can also be examined relative to intercorrelations of Type A measures to reveal the concurrent validity of this component of Type A.

Pearson product-moment correlations of Type A measures and their subscales with teacher-rating and self-report measures of the competitiveness/achievement-striving construct are displayed in Table 7.

Within the teacher-rating method of assessment, MYTH total Type A scores correlated significantly with the

Devereux Achievement scores ($r=.48$) as did Impatience-Aggression subscale scores of the MYTH ($r=.44$). This latter correlation is unexpected, but may be explained on the basis of similar methods of assessment. The significant correlation between the MYTH Competitiveness subscale and the Devereux Achievement scale ($r=.36$) provides supporting evidence that the Achievement-Striving/Competitiveness construct is important for explaining Type A as measured by the MYTH. Further evidence for this is seen in the significant correlations between the teacher-rating method of assessing the Type A competitiveness/achievement-striving component with self-report methods of assessing the competitiveness/achievement-orientation construct. Indeed, MYTH Competitiveness subscale scores were found to correlate significantly with both IAR scores ($r=.30$) and SEIA scores ($r=.25$).

Within the self-report method of assessment, correlations between measures of the competitiveness/achievement-orientation construct and Type A behavior also provide support that this construct is important for explaining Type A behavior. Hunter-Wolf Leadership subscale scores correlated significantly with SEIA scores ($r=.26$) and IAR scores ($r=.47$). In addition, both IAR and SEIA scores correlated negatively and significantly with Hunter-Wolf Alienation subscale scores

($r=-.21$, and $r=-.36$, respectively). Interestingly, both of these self-report methods of assessing the Achievement construct correlated negatively and significantly with Hunter-Wolf Restlessness-Aggression subscale scores (SEIA: $r=-.44$, and IAR: $r=-.23$); further Hunter-Wolf total Type A scores correlated negatively and significantly with SEIA scores ($r=-.30$). These correlations suggest the competitiveness/achievement-orientation construct is inversely related to the aggression/hostility component of Type A as it is measured by the Hunter-Wolf. Finally, self-report Hunter-Wolf Type A scores did not correlate significantly with teacher-rating Devereux Achievement scores ($p>.05$).

Further suggesting the importance of the competitiveness/achievement-orientation construct for explaining Type A behavior are significant correlations between Type A Interview measures and children's self-reports of their achievement orientation. Keeping in mind that the Type A Interview is scored in a reverse direction than the other measures, Speech Stylistics ratings for the Type A Interview correlated significantly with both IAR scores ($r=-.38$) and SEIA scores ($r=-.31$) as did Response Style scores for the Type A Interview ($r=-.27$, and $r=-.30$, respectively). Similar to Hunter-Wolf scores, Type A Interview scores did not correlate significantly with teacher-rating Devereux Achievement scores ($p>.05$).

Competitiveness/Achievement-Orientation--Discriminant Validity

The purpose of the multi-trait multi-method strategy is to compare correlations between different methods of measuring Type A and Type A's competitiveness/achievement-striving component with correlations between the Type A measures and similar methods of measuring the competitiveness/achievement-orientation construct. This strategy reveals mixed support for the discriminant validity of the competitiveness/achievement-striving component of the Type A construct. Hotelling's t values for relevant comparisons are displayed in Tables 8 and 9.

Regarding the MYTH, the correlation between this teacher-rating method of assessing overall Type A behavior and the self-report Hunter-Wolf method ($r=.33$) was not significantly different than the correlation between overall MYTH scores and teacher-rating Devereux Achievement scores ($r=.48$). In addition, the correlation between MYTH Competitiveness subscale scores and Hunter-Wolf Leadership subscale scores ($r=.23$) was not significantly different than the correlation between MYTH Competitiveness subscale scores and Devereux Achievement scores ($r=.36$). These findings suggest the MYTH Competitiveness component does not achieve consistent discriminant validity from the achievement-orientation construct.

Evidence for discriminant validity of Type A based on the results for the Hunter-Wolf are mixed. The correlation between Hunter-Wolf and the MYTH total Type A scores ($r=.33$) was significantly greater than the correlations of Hunter-Wolf total Type A scores with either SEIA scores ($r=-.30$) or IAR scores ($r=-.06$). These comparisons suggest the Type A construct achieves discriminant validity from the competitiveness/achievement-orientation construct. The certainty of this conclusion must be tempered when the unexpected negative relationships between the achievement measures and Hunter-Wolf total Type A scores is considered. Further, the correlation between Hunter-Wolf Leadership subscale scores and SEIA scores ($r=.26$) was not significantly greater than the correlation between Hunter-Wolf Leadership subscale scores and MYTH Competitiveness subscale scores ($r=.23$). However, the correlation between Hunter-Wolf Leadership subscale scores and IAR scores ($r=.47$) was significantly greater than the correlation between Hunter-Wolf Leadership subscale scores and MYTH Competitiveness subscale scores ($r=.23$). This latter finding indeed provides limited support that the Hunter-Wolf Leadership component does not achieve discriminant validity from the competitiveness/achievement-orientation construct.

Competitiveness/Achievement-Orientation-Summary

Significant correlations between the teacher-rating (MYTH), self-report (Hunter-Wolf), and behavioral observation (Type A Interview) methods of assessing Type A (and the Achievement-Striving component of Type A) with measures of achievement-orientation support the concurrent validity of Type A and this component of Type A. Support for the discriminant validity of the Competitiveness and Leadership components of Type A from the separate Achievement-Orientation/Competitiveness construct is not consistently provided by these findings, however.

Depression

Depression in children was used as a more stringent discriminant construct against which the preceding discussion regarding the relationships of Type A construct and its components with impatience/aggression/hostility and competitiveness/achievement-striving constructs could be viewed. In particular, correlations between depression measures and Type A measures were expected to be significantly smaller, and even negative in comparison to higher and positive correlations between impatience/aggression/hostility or competitiveness/achievement-orientation measures and Type A measures.

Correlations between Depression and Type A Measures

Pearson product-moment correlations of Type A measures and their subscales with teacher-rating and self-report measures of the depression construct are displayed in Table 10.

Within the teacher-rating method of assessment, both MYTH total Type A scores and MYTH Competitiveness subscale scores correlated significantly and negatively with Devereux Withdrawal scores ($r=-.21$, and $r=-.53$, respectively). The correlation between MYTH Impatience-Aggression subscale scores and Devereux Withdrawal scores was not significant ($r=.13$). This pattern suggests Type A, as measured by the MYTH, indeed can be discriminated from the Depression construct. Further support for this finding was provided by the significant and negative correlation between teacher-rating MYTH Competitiveness subscale scores and self-report CDI scores ($r=-.24$). Interestingly, CDI scores, which include some items tapping the aggression levels that are often associated with Childhood Depression (Petti, 1983), were positively and significantly correlated with MYTH Impatience-Aggression subscale scores ($r=.19$).

Within the self-report method of assessment, correlations between the Depression construct and Type A behavior provide further support for the discriminant

validity of Type A. CDI scores correlated significantly and negatively with Hunter-Wolf Leadership subscale scores ($r=-.34$) and positively and significantly with Hunter-Wolf Alienation subscale scores ($r=.40$). As demonstrated in earlier results, Hunter-Wolf total Type A scores are strongly correlated with it's own Restlessness-Aggression subscale scores ($r=.83$). It is therefore not surprising that CDI scores, which contain items tapping aggression, were positively and significantly correlated with both Hunter-Wolf Restlessness-Aggression subscale scores ($r=.38$) and Hunter-Wolf total Type A scores ($r=.23$). Finally, Hunter-Wolf Leadership subscale scores also were correlated significantly and negatively with teacher-rating Devereux Withdrawal scores ($r=-.26$), however other Hunter-Wolf scores were not correlated significantly with Devereux Withdrawal scores ($p>.05$).

Further evidence that the Type A construct is discriminant from the Depression construct is the pattern of non-significant and inverse relationships between the Type A Interview measures and the self-report and teacher-rating measures of the Depression construct. Response Style scores for the Type A Interview did not correlate significantly with either Devereux Withdrawal scores ($r=.17$) or CDI scores ($r=.24$). In addition, Devereux Withdrawal scores did not correlate significantly with Speech Stylistics ratings for the Type A Interview

($r=.18$). Keeping in mind that the Type A Interview is scored in a reverse direction than the other measures, Speech Stylistics ratings for the Type A Interview correlated significantly with CDI scores ($r=.29$). This provides evidence of a moderate inverse relationship between Type A, as rated on the basis of children's responses to the Type A Interview, and children's self-reports of their Depression levels.

Comparisons for Type A and Depression Correlations

In accord with the multi-trait multi-method strategy, the discriminant validity of the Type A construct from the Depression construct can be established further by comparing intercorrelations of measures of the Type A construct (across methods of measurement) to correlations between measures of the Type A and Depression constructs (assessed by either the self-report or teacher-rating method). Hotelling's t values and significance levels relevant to these comparisons are displayed in Tables 11 and 12.

Regarding the teacher-rating method of assessing Type A, the negative correlation between MYTH total Type A scores and Devereux Withdrawal scores ($r=-.21$) was significantly less than the correlation between MYTH and Hunter-Wolf total Type A scores ($r=.33$). In addition, the correlation between MYTH Impatience-Aggression and Devereux Withdrawal scores ($r=.13$) was significantly less

than the correlation between MYTH Impatience-Aggression and Hunter-Wolf Restlessness-Aggression scores ($r=.40$), although not significantly less than the correlation between MYTH Impatience-Aggression and Hunter-Wolf Eagery subscale scores ($r=.28$). Finally, the correlation between MYTH Competitiveness subscale scores and Devereux Withdrawal scores ($r=-.53$) was also significantly less than the correlation between MYTH Competitiveness and Hunter-Wolf Leadership subscale scores ($r=.23$). Together, these findings provide support that Type A, as measured by the MYTH, achieves discriminant validity from the depression construct.

Correlation comparisons regarding the Hunter-Wolf self-report method of assessing Type A provide similar, albeit weaker, evidence for the discriminant validity of the Type A construct from the Depression construct. Hotelling's t values for relevant comparisons are displayed in Table 12. Although not significant, the correlation between Hunter-Wolf total Type A scores and CDI scores ($r=.23$) was smaller than the correlation between Hunter-Wolf and MYTH total Type A scores ($r=.33$). Similarly, correlations between CDI scores and Hunter-Wolf Restlessness-Aggression and Eagery subscale scores ($r=.38$ and $r=.13$, respectively) were not significantly less than the correlations between Hunter-Wolf Restlessness-Aggression and Eagery-Energy subscale scores and MYTH

Impatience-Aggression subscale scores ($r=.40$, and $r=.28$, respectively). Finally, the negative correlation between Hunter-Wolf Leadership subscale scores and CDI scores ($r=-.34$) was significantly less than the correlation between Hunter-Wolf Leadership and MYTH Competitiveness subscale scores ($r=.23$).

Depression--Summary

Non-significant positive correlations and significant negative correlations between Type A measures and measures of the Depression construct reveal Type A to be distinct from Depression. Furthermore, application of the multi-trait multi-method strategy establishes the discriminate validity of the Type A construct from the Depression construct. That is, comparisons of correlation between measures of Type A and Depression and correlation between measures of Type A and Anger/Aggression, as well as comparisons between Type A-Depression correlations and Type A-Achievement-Orientation correlations reveal that Type A is even less related to the Depression construct than it is to the Anger/Aggression or the Achievement-Orientation constructs.

Predicting Type A

In addition to establishing the construct validity of Type A through the multi-method multi-trait strategy of examining it's convergent, concurrent and discriminant

validity, it was also possible to examine what methods of measuring which constructs would best predict assessed levels of Type A. Specifically, Stepwise Multiple Regression analyses using Forward selection procedures were computed for each method of measuring Type A behavior.

MYTH

All self-report and teacher-rating methods of measuring Anger-Aggression, Achievement-Oriented and Depression as well as the self-report Hunter-Wolf were entered for possible inclusion in a Step-wise Multiple Regression forward selection procedure to predict levels of Type A behavior measured by teacher-ratings on the MYTH. A summary of the results of these analyses can be found in Table 13. Of these measures, teacher-ratings of children's aggression levels on the AML accounted for the most variance (40 percent) in Type A behavior as measured by teacher-ratings on the MYTH ($R^2 = .40$, $F(1,117)=78.05$, $p<.0001$). Inclusion of teacher-ratings of children's depression levels (Devereux Depression scores) significantly added to this prediction ($F(1,116)=62.63$, $p<.0001$) resulting in 61 percent of the variance in MYTH Type A scores being accounted for ($F(2,116)=90.89$, $p<.0001$). Additional inclusion of teacher-ratings of children's achievement orientation (Devereux Achievement scores) also added significantly to the predictive

capabilities of the AML and Devereux Depression scores ($F(1,115)=41.16, p<.0001$), resulting in a total of 71 percent of MYTH variance being accounted for ($F(3,115)=95.30, p<.0001$). Thus, teacher-ratings of aggression, depression and achievement-orientation best predicted teacher-ratings of Type A. This pattern is strongly suggestive of the relative strength of method variance in influencing predictions of teacher-ratings of Type A behavior.

Of the self-report measures, only Hunter-Wolf total Type A scores and SEIA scores added significantly to the prediction of teacher-ratings of Type A behavior on the MYTH by the other teacher rating measures ($F(1,114)=4.96, p<.03$, and $F(1,113)=7.39, p<.008$, respectively). Addition of these self-report measures to the teacher-rating measures resulted in a total of 74 percent of MYTH variance accounted for ($F(5,113)=64.92, p<.0001$). The Hunter-Wolf scores accounted for only 11 percent of the variance ($R^2 = .11, F(1,117)=14.25, p<.0003$) when forced first as a predictor of MYTH Type A scores. Of course, this finding is redundant with the significant correlation of .33 between MYTH and Hunter-Wolf total Type A scores reported earlier, which also could be interpreted as a shared variance of 11% between these two measures. Thus, teacher-ratings of Type A are best predicted by teacher-ratings of aggression, depression and achievement-

orientation, and self-reports of Type A show relatively weaker predictive powers.

Hunter-Wolf

Similar to the MYTH, all measures were entered for possible inclusion in a step-wise multiple regression analysis using a forward selection procedure to predict Type A behavior as assessed by children's self-reports on the Hunter-Wolf. A summary of the results of these analyses can be found in Table 14. Teacher-ratings of Type A behavior on the MYTH best predicted Hunter-Wolf Type A levels, accounting for a significant 11 percent of the variance ($F(1,117)=14.25, p<.0003$). Thus, these results indicate that levels of Type A, as measured by the Hunter-Wolf, are best predicted by a different method of measuring Type A behavior. Only self-reports and teacher-ratings of achievement-orientation added significantly to the prediction of Hunter-Wolf Type A scores by the MYTH Type A scores ($F(1,116)=16.69, p<.0001$, and $F(1,115)=4.42, p<.04$, respectively). Specifically, inclusion of SEIA scores resulted in a significant 22 percent of Hunter-Wolf score variance being accounted for ($F(2,116)=16.43, p<.0001$), and the additional inclusion of Devereux Achievement scores accounted for a significant total of 25 percent of the Hunter-Wolf Type A variance ($F(3,115)=12.75, p<.0001$).

Thus, teacher-ratings of Type A and Achievement-

Orientation and self-reports of Achievement-Orientation together best predict Type A as measured by the Hunter-Wolf.

Type A Interview

Step-wise multiple-regression analyses using a forward selection procedure were used to predict both Speech Stylistic ratings and Response Content scores for the Type A Interview. Predictors entered for inclusion consisted of all teacher-rating and self-report measures of Type A behavior, Anger/Aggression, Achievement-Orientation and Depression. A summary of the results of these analyses for the Speech Stylistics scores can be found in Table 15; for the Response Content ratings, Table 16.

For predicting the Speech Stylistics ratings of the Type A Interview, IAR scores significantly accounted for the most variance ($R^2 = .18$, $F(1,54)=12.10$, $p<.001$). Only Hunter-Wolf Type A scores significantly added to the prediction of Type A Interview Speech Stylistics scores ($F(1,53)=6.65$, $p<.02$); together they accounted for 27 percent of the variance of the Speech Stylistics ratings for the Type A Interview ($F(2,53)=10.01$, $p<.0002$). Thus, self-reports of achievement-orientation and Type A account for overall ratings of children's speech styles during the Type A Interview.

Of all measures, teacher ratings of children's Type A

levels on the MYTH accounted for 16 percent of the variance of Type A Interview Response Content scores ($F(1,54)=10.31, p<.003$). Thus, for the Response Content scores, a different method of assessing Type A behavior, best predicted Type A levels. Furthermore, only self-reports of achievement-orientation on the IAR added significantly to this prediction ($F(1,53)=7.2, p<.01$), resulting in 26 percent of the variance in Type A Interview Response Content scores being accounted for altogether ($F(2,53)=9.35, p<.0003$).

In summary, the MYTH, Hunter-Wolf, and Type A Interview were found to be predicted by different combinations of variables. The MYTH was best predicted by other teacher rating measures, regardless of what these measures assessed. The best predictor of overall Type A scores on the MYTH was teacher ratings of children's levels of aggression on the AML. While Hunter-Wolf total Type A scores added significantly to the prediction of MYTH Type A scores, it added only 2% to the amount of variance accounted for, and by itself, accounted for only 11% of the variance of MYTH scores.

The Hunter-Wolf total Type A scores and Type A Interview Response Content scores, in contrast, were best predicted by teacher ratings of overall Type A levels on the MYTH. Furthermore, Type A Interview Speech Stylistics scores, while best predicted by self-reports of

achievement-orientation on the IAR, were also significantly predicted by Hunter-Wolf total Type A scores which added 9% to the total variance accounted for by both of these measures. Thus, while the MYTH Type A scores were not well predicted by other Type A measures, Type A levels on the Hunter-Wolf and the Type A Interview were well predicted by other Type A measures.

DISCUSSION

The present study was conducted to provide clarification of the relationship between Type A behavior in children and similar constructs such as anger and aggression, as well as achievement-orientation. The goal was to determine the uniqueness of Type A as a construct in relation to these similar constructs, as well as in relation to a rather dissimilar construct (i.e., depression). With this aim in mind, data were collected to confirm or refute the construct validity of Type A, that is, whether measures of Type A assess the construct they are intended to measure. Specifically, the multi-trait multi-method construct validation strategy proposed by Campbell and Fiske (1959) was adapted for the current study. Accordingly, self-report and teacher-rating methods of assessing Type A, anger/aggression, achievement-orientation and depression were administered to a population of fifth grade boys and girls. In addition, Type A was further assessed by a behavior observation method. Data analyses were conducted to determine the construct validity of Type A by determining the convergent, concurrent and discriminant validity of the Type A measures.

Convergent validity refers to the degree to which measures of a construct are related to other measures of the same construct (Selltiz, Wrightsman & Cook, 1976;

Campbell & Fiske, 1959). Results of the present study indeed support the convergent validity of Type A. That is, correlations between teacher-rating (MYTH), self-report (Hunter-Wolf) and behavior observation (Type A Interview) methods of assessing overall Type A levels were found to be consistently positive and chiefly significant. When correlations of subscales of the MYTH and Hunter-Wolf with overall Type A levels were examined, evidence was produced suggesting that each measure tapped specific components of the Type A construct differentially, however. The teacher-rating (MYTH) and self-report (Hunter-Wolf) methods of assessing overall Type A levels were found to correlate significantly with subscales tapping energy, restlessness, impatience and aggression both within and across methods of measurement, while not correlating significantly with subscales tapping leadership and competitiveness. Conversely, the behavior observation method of assessing Type A (Type A Interview) correlated significantly with subscales of the teacher-rating and self-report measures tapping leadership and competitiveness, while showing little relation to the subscales of those measures tapping energy, restlessness and aggression.

These findings are consistent with results of other research which has examined the intercorrelations of measures of the Type A behavior pattern in children and

adolescents. Gerace and Smith (1983) found Type A Interview scores correlated significantly with only MYTH Competitiveness (r 's=.32 to .42) and total Type A scores (r 's=.34 to .39), but not with MYTH Impatience-Aggression scores (r 's=-.12 to .23). Matthews and Jennings (1984) also reported a modest yet significant correlation of .42 between overall Adolescent Structured Interview (ASI) scores and MYTH total Type A scores. Unfortunately, the correlations between MYTH subscale scores and ASI scores were not provided by these authors.

Other studies have not found as encouraging data regarding the concordance of different measures of the Type A behavior pattern. Seigel and Leitch (1981) found low concordance between the ASI and the Bortner test. More recently, Kliever and Weidner (1987) found an only marginally significant correlation (r =.22) between Hunter-Wolf and MYTH total Type A scores. However, similar to the results of the present study, they found the strongest correlation (r =.32) to exist between MYTH Impatience-Aggression and Hunter-Wolf Restlessness-Aggression scores.

Thus, while the different methods of measuring the Type A behavior pattern were found to be significantly interrelated in the present study, thereby supporting the convergent validity of the Type A behavior pattern, subtle differences in what components of Type A each measure assessed were detected. Further, similarities between the

present results and previous research are parallel to findings of adult research. That is, differential measurement of components of the Type A behavior pattern by different measurement methods was also concluded by Byrne et al. (1985) who likewise emphasized the importance of the multidimensional nature of the Type A behavior pattern in adults.

Concurrent validity refers to the ability of a measure of a construct to produce results consistent with results from measures of a similar construct (Selltiz, Wrightsman & Cook, 1976). Type A behavior is characterized as consisting of a preponderance of a set of behaviors including aggression, hostility, time-urgency and competitive achievement striving. Accordingly, concurrent validation of Type A could be supported if measures of Type A were found to be significantly related to measures of these components. Indeed, previous validation studies described earlier in this paper have focused on such concurrent validation issues (Matthews, 1979; Matthews & Angulo, 1980; Matthews & Volkin, 1981; Wolf, et al., 1982). Importantly, however, these previous studies have used their findings to support the validity of the Type A construct. In contrast, this author considers such results to be supportive only of the abilities of the various measures purported to assess the Type A behavior pattern to actually tap the relevant

dimensions of Type A. Further, this author does not consider such results to be sufficient for concluding the construct validity of the Type A behavior pattern.

Regarding the anger/aggression component of Type A, results of the present study are mildly supportive of the concurrent validity of the MYTH and Hunter-Wolf. That is, both overall Type A scores and subscales of these teacher-rating and self-report measures tapping the anger-aggression component of Type A were found to be significantly correlated with teacher-ratings of aggression. However, children's self-reports of anger on the CIA were not significantly correlated with either teacher-ratings or self-reports of overall Type A levels, nor with Type A subscales tapping the anger/aggression levels. Rather than interpreting this as non-supportive evidence of the concurrent validity of Type A and its anger/aggression component, one must question the adequacy of the CIA in the present study, in that it also did not correlate significantly with the AML Aggression scores ($r=.06$, $p<.05$). The concurrent validity of the Type A Interview was not supported, as it was not correlated significantly with either teacher-ratings or self-reports of aggression and anger. This result is not surprising, as the Type A Interview also did not correlate significantly with subscales of the MYTH and Hunter-Wolf tapping restlessness, aggression and eagerness.

Regarding the achievement striving/competitiveness component of Type A, results of the present study support the concurrent validity of the MYTH, Hunter-Wolf, and Type A Interview. Within measurement method, significant correlations of the MYTH and Hunter-Wolf with measures of achievement orientation were obtained. Furthermore, across measurement methods significant correlations between the MYTH and Type A Interview and measures of achievement orientation were obtained. Somewhat disconcerting is the lack of significant correlations (across methods of measurement) of the Devereux Achievement scale with the Hunter-Wolf and Type A Interview.

The contribution of measurement method may indeed be critical for understanding this non-supportive result. The teacher-rating Devereux Achievement scores were also non-significantly correlated with the self-report measures of achievement orientation (IAR: $r=-.09$, $p>.05$; SEIA: $r=-.04$, $p>.05$), yet indeed correlated significantly with all teacher-rating MYTH scales, including the MYTH Impatience-Aggression subscale.

Thus, mild support for the concurrent validity of Type A and Type A's anger/aggression and achievement-striving/competitiveness components was provided by the present study. Complicating this conclusion are the observed deficiencies in the CIA, as well as the influence

of method of measurement on these results.

Discriminant validity refers to the ability of a construct as it is measured to be differentiated from other constructs (Campbell & Fiske, 1959). In the present study, correlations between different measures of Type A (across method of measurement) were compared to correlations between measures of Type A and measures of other constructs (within method measurement). If discriminantly valid, the measures of Type A should relate more significantly to each other than they do to measures of a separate construct. Crucial for the present study was the discrimination of Type A from the related yet distinct constructs of anger/aggression and achievement-orientation, as well as from the more disparate construct of depression.

Results of the present study do not consistently support the discriminant validity of Type A from anger/aggression and achievement-orientation. The teacher-rating MYTH and the MYTH Impatience-Aggression subscale were correlated significantly more with teacher-ratings of aggression than they were with the Hunter-Wolf self-report measure of Type A. Furthermore, the MYTH and the MYTH Competitiveness subscale were correlated to a greater degree with Devereux Achievement teacher-ratings of achievement-orientation than with Hunter-Wolf self-reports of Type A levels, although not to a significant

degree. Results for the Hunter-Wolf provide mild yet inconsistent support of the discriminant validity of Type A as measured by this self-report method, however. Hunter-Wolf scores were more related to MYTH teacher-ratings of Type A than to children's self-reports of anger, seeming to support the discriminant validity of Type A as measured by the Hunter-Wolf from anger/aggression. However, as previously noted, the CIA may be an inadequate measure of anger/aggression, hence this support for discriminant validity must be interpreted with caution. The Hunter-Wolf overall Type A scores also were more correlated with MYTH teacher-ratings of Type A levels than they were with self-reports of achievement orientation, however, achievement-related subscales of the Hunter-Wolf were more related to self-reports of achievement orientation. Thus, the Hunter-Wolf does appear to be discriminant from anger/aggression, but is not as discriminant from achievement orientation.

Inconsistent discrimination of the Type A behavior pattern from somewhat similar constructs also has been demonstrated by other more current authors. For example, Robinson et al. (1987), while supporting the discriminant validity of the MYTH, noted the similarity between aggressive, non-competitive boys classified on the basis of MYTH ratings and boys diagnosed as Attention Deficit Disorder with Hyperactivity. Similarly, Whalen

and Henker (1986) reported significant differences between diagnosed Hyperactive and normal boys on MYTH total Type A and Impatience-Aggression subscale scores. That is, the boys diagnosed Hyperactive scored significantly higher than their normal peers on these scales, but they did not score differently on the Competitiveness scale of the MYTH.

The present study does support the discriminant validity of Type A, as measured by the MYTH, Hunter-Wolf and Type A Interview, from depression. Within and across methods of measurement, Type A as measured by the MYTH, Hunter-Wolf and Type A Interview was generally either negatively related to depression, or showed no significant relation to depression. A notable exception to this pattern of results was the finding that MYTH and Hunter-Wolf subscales reflecting aggression showed some positive relation to depression. In so far as depression measures include some items tapping the aggression levels that at times are associated with childhood depression, this finding does not detract from the discriminant validity of Type A from depression. Furthermore, and similar to the procedure used to determine the discriminant validity of Type A from anger/aggression and achievement orientation, correlations between Type A measures (across measurement method) were compared to correlations between Type A and depression (within measurement method). Results of these

comparisons indeed supported the discriminant validity of Type A from depression, as Type A measures were consistently more correlated with each other than they were to similar methods of measuring depression.

Finally, stepwise multiple regression analysis using forward selection procedures were conducted to determine the best predictors of each of the three measures of Type A used in this study. Overall Type A levels for both the Hunter-Wolf and Type A Interview were best predicted by other Type A measures, however the overall MYTH Type A scores were best predicted by other teacher-rating measures, particularly those ratings of aggression levels, and other Type A measures did not prove as useful for predicting MYTH Type A levels.

Limitations

A number of possible limitations of the findings of the current study can be detected.

First, the sample on which the current study was based consists of only a subset of the total population of 5th grade boys and girls possible to assess. Notably, children from this area of the country may be considered non-representative of all children in that they tend to have lived in this area on the average more than 5 years. Further, the lifestyles of families living in the mountainous regions of southwestern Virginia probably

cannot be considered comparable to the lifestyles of families from inner city or more suburban areas in the United States, nor to those of families from other countries. As a result, replications for more diverse populations are clearly warranted. Further, the small age range (10-13 years old) of the current study limits the generalizability of conclusions to either older or younger children. Thus, replication across ages further is warranted to assure the current findings are not applicable only to this age range.

Second, specific measures used in the current study were noted to have limitations which may have contributed to the pattern of results obtained. The CIA was not correlated significantly with most other measures of the anger/aggression construct, nor with any of the Type A measures as was expected. The high internal consistency (.96) of this measure reported by Finch and Rogers (1984) suggests that the high homogeneity of this measure may reduce its ability to correlate with other measures of the same construct. As a result, findings supporting the discriminant validity of the Type A construct, as measured by the self report method, from the anger/aggression construct may be falsely positive. Similar difficulties were observed for the Devereux Achievement scores, which did not correlate significantly across methods of measurement to children's self reports

of their achievement-orientation on the SEIA and IAR. The findings of discriminant validity for teacher ratings of Type A in children from the achievement-orientation construct thus may be falsely positive as well.

Third, and on a more positive note, all of the measures used in the current study did produce distributions of scores similar to findings of previous research (where reports were available). As such, the results of the current study likely are not affected by idiosyncracies of the current sample's responses to the measures.

Fourth, the method chosen for this study was the multi-method, multi-trait construct validation strategy. This is a highly theoretical strategy which relies heavily on the interpretation of the researcher. That is, constructs must be chosen on a theoretical basis for comparison to the construct of interest. One could argue that choosing anger and achievement-striving as potentially discriminant constructs to compare the Type A construct against was, in effect, stacking the deck against finding Type A a unique construct.

Fifth and finally, the Type A Interview was administered only to half of the total sample which completed the other measures. Non-significant differences between interviewed and non-interviewed subjects on demographic variables and other measures used in the

current study suggest that the subpopulation administered the Type A Interview was representative of the total sample. However, it is also plausible that subtle differences between children whose parents did and did not return permission for their children to be interviewed affect the results of this study pertaining to the Type A Interview. Furthermore, with only one interviewer used to conduct all of the Type A Interviews, it is possible that idiosyncracies of the interviewer's verbal style also affected the results obtained for the interviews. The less adequate correlations of Type A Interview scores with other Type A measures, as well as with measures of the other constructs, may be artifacts of these limitations. Fortunately, however, differences across interviews in the interviewer's verbal behavior which could have contaminated the findings were not detected. Further replications of these results for multiple interviewers for a complete subject sample thus would be needed to rule out problems resulting from these limitations.

Implications

An overall review of the results of the present study reveals Type A as measured by the MYTH, Hunter-Wolf and Type A Interview achieves both convergent and concurrent validity. That is, these measures of Type A were found to be consistantly and significantly interrelated, and

generally positively related to measures of constructs similar to Type A including anger/aggression as well as achievement-orientation. These results are generally consistent with previous validation work reviewed for this study. These measures subtly assessed components of Type A differentially however, where the MYTH and Hunter-Wolf reflected the time-urgent, restless, impatient, aggressive components of Type A to a greater degree, while the Type A Interview reflected the competitive achievement-striving component. Crucial for determining the construct validity of Type A is the determination of the discriminant validity of Type A. The present study does support the discriminant validity of Type A from depression. Type A is not as clearly discriminated from anger/aggression and achievement-orientation, however.

The failure to consistently discriminate Type A from anger/aggression and achievement-orientation, while supporting its convergent and concurrent validity, has important implications. Type A was researched originally as a behavioral precursor to coronary heart disease in adults. In attempting to discover it's early roots, measures of Type A for preschoolers, elementary age children and adolescents were constructed. However, the link between Type A behavior in children, Type A behavior in adults, and adult coronary heart disease has not as yet been firmly established. Indeed, the stability of the

Type A behavior pattern over one year intervals is the only support available for such far-reaching assumptions (Matthews & Avis, 1983; Weidner et al., 1986).

Assuming at least some link between coronary heart disease and Type A, the pragmatic goal of understanding Type A is to understand the contribution of psychological variables to this physical disease, thereby enabling the development of appropriate psychological interventions to reduce the risk of a life-threatening illness. Crucial to this goal is an accurate understanding of the development of Type A behavior and its origins in childhood. The present study provides at least preliminary evidence that Type A behavior in children may indeed be indistinguishable from related constructs such as aggression and achievement orientation. This evidence thus raises questions regarding the efficiency of treating childhood Type A behavior as a unique entity, and developing early interventions specifically to alter Type A. If replicated, the results of this study suggest far simpler and already established interventions for anger and aggressiveness may be quite sufficient.

Furthermore, children are not simply miniature adults, and adult behaviors do not necessarily have exactly corresponding child-sized versions. The development of the individual is a complex process, likely influenced by a variety of bi-directional interactions

between the individual and his/her environment. Accordingly, the assumption that Type A behavior in children should resemble Type A behavior in adults is open to empirical verification. Results of this study do not provide support for the uniqueness of the Type A behavior pattern in children, and instead show the Type A behavior pattern in children to be intricately inter-related to alternate constructs.

Further, a recent report by Steinberg (1986) casts serious doubts on assumptions about the stability of the Type A behavior pattern from childhood through adolescence and into adulthood. He reports shifts in the correlations between the more prosocial and antisocial dimensions of the Type A behavior pattern as individuals age. Specifically, the prosocial and antisocial dimensions of the Type A behavior pattern appear to be positively related in childhood, unrelated during adolescence, and negatively related into young adulthood. He thus concludes "Type A children" do not necessarily grow up to be Type A adults.

Future research on the early development of the Type A behavior pattern should thus carefully examine the contributions of children's anger, aggressive behavior and achievement orientation if it is to provide meaningful conclusions about the primary prevention of adult coronary heart disease. Rather than narrowing the focus of this

body of research, the present study thus broadens the search for the origins of the Type A behavior pattern and its contribution to coronary artery disease.

Table 1: Sample Characteristics.

	<u>Mean</u>	<u>Standard Deviation</u>
Age	11.0	.74
Total Siblings	2.0	1.45
Older Siblings	1.0	1.35
Younger Siblings	1.0	.93
Grade Started Elementary School in Current School	1.0	1.77

Table 2: Differences between children whose parents did and did not return permission for Type A Interviews on self-report and teacher-rating measures, and demographic variables.

	Returned "Yes" Permission (n=66)	Returned "No" Permission (n=6)	Did Not Return Permission (n=60)
**Age	10.8	10.3	11.2
MYTH Total	46.7	48.8	49.5
HW Total	94.6	97.5	95.1
AML (Total)	21.7	25.5	25.7
IAR	22.6	21.8	22.4
CIA	215.8	234.8	212.7
CDI	10.3	6.8	13.5

* p<.05

** p<.01

Table 3 Pearson Product-Moment Correlations between MYTH, Hunter-Wolf, and Type A Interview Total and Subscale Scores.

	<u>MYTH</u>		<u>Hunter-Wolf</u>			<u>Type A Interview</u>			
	<u>Total</u>	<u>Impat- Aggress</u>	<u>Total</u>	<u>Rest.- Agg.</u>	<u>Eagery</u>	<u>Leader</u>	<u>Alien</u>	<u>Speech Style</u>	<u>Response Style</u>
<u>MYTH</u>									
Total	(1.00)	.86***	.33***	.34***	.26**	.07	-.10	-.36**	-.44***
Impat-Agg	(1.00)	.42***	.36***	.40***	.28**	-.05	.04	-.25	-.34**
Competitiveness	(1.00)	.17	.15	.12	.23**	.22**	-.33**	-.37**	(n=59)
		(n=131)			(n=120)				
<u>Hunter-Wolf</u>									
Total	(1.00)	.83***	.12	.49***	-.26*	-.23			
Rest.-Agg.	(1.00)	.46***	-.04	.38***	-.13	-.14			
Eagery	(1.00)	-.004	.15	-.16	-.17				
Leadership	(1.00)	-.17	-.38**	-.26*					
Alienation	(1.00)	-.15	-.11						
		(n=130)							
<u>Type A Interview</u>									
Speech Stylistics	(1.00)	.93***							
Response Style	(1.00)								
		(n=62)							

* p<.05
** p<.01
*** p<.001

Note: The Type A Interview is scored in a direction opposite to the other measures. Therefore, negative Pearson product-moment correlations between the Type A Interview and other measures indicate positive relationships.

Table 4 Pearson Product-Moment Correlations of the CIA and AML Aggressiveness scale with MYTH, Hunter-Wolf and Type A Interview measures.

	<u>CIA</u>		<u>AML-Aggressiveness</u>		
<u>MYTH</u>					
Total	.08		.63	***	
Imp-Agg	-.06	n=122	.84	***	n=131
Compet.	-.07		.17		
<u>Hunter-Wolf</u>					
Total	.07		.30	***	
Rest-Agg.	.16		.37	***	
Eagery	.01	n=130	.30	***	n=120
Leadership	-.14		-.04		
Alienation	.08		.06		
<u>Type A Interview</u>					
Speech Style	.12		-.20		
Response Style	.03	n=60	-.24		n=59

* p<.05
 ** p<.01
 *** p<.001

Note: The Type A Interview is scored in a direction opposite to the other measures. Therefore, negative Pearson product-moment correlations between the Type A Interview and the other measures indicate a positive relationship.

Table 5: Hotelling's t values and significance levels (d.f.=117) for comparisons of correlations between Hunter-Wolf and Children's Inventory of Anger (CIA) and for correlations between Hunter-Wolf and MYTH.

Correlations Between Type A Measures

Correlations within Teacher rating methods of Assessment	MYTH Total- Hunter-Wolf Total r=.33	MYTH Impatience- Hunter-Wolf Rest- lessness Aggression r=.40	MYTH Impatience Agg Hunter-Wolf Eagery r=.28
MYTH Total-AMLA r=.63	-3.63 p<.005		
MYTH Impatience Aggression- AMLA r=.84		-8.04 p<.005	-9.576 p<.005

Table 6: Hotelling's t values and significance levels (d.f.=117) for comparisons of correlations between Hunter-Wolf and Children's Inventory of Anger (CIA) and for correlations between Hunter-Wolf and MYTH.

Correlations Between Type A Measures

Correlations within Teacher rating methods of Assessment	MYTH Total-Hunter-Wolf Total r = .33	MYTH Impatience-Hunter-Wolf Restlessness Aggression r = .40	MYTH Impatience Agg-Hunter-Wolf Eagery r = .28
Hunter-Wolf-CIA r = .07	2.03 p < .05		
Hunter-Wolf Restlessness Aggression-CIA r = .16		1.99 p < .05	
Hunter-Wolf Eagery-CIA r = .01			2.09 p < .05

Table 7 Pearson product-moment Correlations of Devereux Achievement, IAR, and SEIA scales with MYTH, Hunter-Wolf, and Type A Interview measures.

	<u>Devereux Achievement</u>		<u>IAR</u>		<u>SEIA</u>	
<u>MYTH</u>						
Total	.48 ***		.08		.04	
Impat-Agg.	.44 ***	n=131	-.10	n=121	-.17	n=122
Competitiveness	.36 ***		.30 ***		.25 **	
<u>Hunter-Wolf</u>						
Total	.02		-.06		-.30 ***	
Rest.-Agg.	.07		-.23 **		-.44 ***	
Eagergy	.21	n=121	-.09	n=129	-.12	n=130
Leadership	-.08		.47 ***		.26 **	
Alienation	-.11		-.21 *		-.36 ***	
<u>Type A Interview</u>						
Speech Stylistics	-.02		-.38 **		-.31 *	
Response Style	-.12	n=59	-.30 *	n=60	-.30 *	n=60

* p<.05
 ** p<.01
 *** p<.001

Note: The Type A Interview is scored in a direction opposite to the other measures. Therefore, negative Pearson product-moment correlation coefficients between the Type A Interview and other measures indicate positive relationships.

Table 8 Hotelling's t values and significance levels (d.f.=117) for comparisons of correlations between the MYTH and Hunter-Wolf and correlations between the MYTH and Devereux Achievement Scale.

Correlations Between Type A Measures

Correlations within
Teacher rating method
of Assessment

MYTH Total -
Devereux Achievement
r=.48

MYTH Competitiveness -
Devereux Achievement
r=.36

MYTH Total-Hunter-
Wolf Total
r=.33

MYTH Competitiveness -
Hunter-Wolf Leadership
r=.23

-1.42
p>.05

1.01
p>.05

Table 9: Hotelling's t values and significance levels (d.f.=117) for comparisons of correlations between the Hunter-Wolf and MYTH and correlations between the Hunter-Wolf, Self-Esteem Inventory Achievement, (SEIA) and Achievement Responsibility (IAR).

<u>Correlations Between Type A Measures</u>		
<u>Correlations within Self-Report method of Assessment</u>	<u>Hunter-Wolf Total-MYTH Total</u> r=.33	<u>MYTH Competitiveness Hunter-Wolf Leadership</u> r=.23
Hunter-Wolf Total-SEIA r=-.30	5.79 p<.005	
Hunter Wolf Total IAR r=-.06	3.31 p<.005	
Hunter-Wolf Leadership-SEIA r=.26		-.28 p>.05
Hunter-Wolf Leadership-IAR r=.47		2.50 p<.01

Table 10 Pearson Product-Moment Correlations of CDI Scores and Devereux Withdrawal Scores with MYTH, Hunter-Wolf, and Type A Interview Measures.

	<u>CDI</u>		<u>Devereux Withdrawal</u>	
<u>MYTH</u>				
Total	-.01		-.21 *	
Impat.-Agg.	.19 *	n=122	.13	n=131
Competitiveness	-.24 **		-.53 ***	
<u>Hunter-Wolf</u>				
Total	.23 **		-.03	
Rest.-Agg.	.38 ***		.001	
Eagery	.13	n=130	-.11	n=120
Leadership	-.34 ***		-.26 **	
Alienation	.40 ***		.13	
<u>Type A Interview</u>				
Speech Stylistics	.29 *	n=60	.18	n=59
Response Style	.24		.17	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

Note: The Type A Interview is scored in a direction opposite to the other measures. Therefore, negative Pearson product-moment correlations between the Type A Interview and other measures indicate positive relationships.

Table 11 Hotelling's t values and significance levels (d.f.=11) for comparisons of correlations between MYTH and Hunter-Wolf and correlations between MYTH and Devereux Withdrawal scores.

Correlations Between Type A Measures

Correlations of Teacher rating methods of Assessment	MYTH Total - Hunter-Wolf Total r=.33	MYTH Impatience-Hunter-Wolf Rest.- Aggression r=.40	MYTH Impatience-Hunter-Wolf Eagery r=.28	MYTHCompet.- Hunter-Wolf Leadership r=.23
--	---	--	---	--

MYTH Total - Devereux Withdrawal
r=-.21
4.40
p<.005

MYTH Impatience-Aggression -- Devereux Withdrawal
r=.13
2.28
p<.05

1.28
p>.05

MYTH Competitiveness -- Devereux Withdrawal
r=-.53
6.16
p<.005

Table 12: Hotelling's t values and significance levels (d.f.=117) for comparisons of correlations between Hunter-Wolf and the MYTH and correlations between Hunter-Wolf and the Children's Depression Inventory (CDI).

Correlations Between Type A Measures

Correlations Within Self-report method of Assessment	MYTH Total-Hunter-Wolf Total	MYTH Impatience-Hunter-Wolf Restlessness Aggression	MYTH Impatience-Agg Hunter-Wolf Eagery	MYTH Competitiveness-Hunter-Wolf Leadership
Hunter-Wolf Total - CDI	r=.33	r=.40	r=.28	r=.23
r=.23	p>.05			
Hunter-Wolf Restlessness Aggression-CDI				
r=.38		r=.20		
		p>.05		
Hunter-Wolf Eagery-CDI				
r=.13			1.34	
			p>.05	
Hunter-Wolf Leadership-CDI				
r=.34				4.22
				p<.005

Table 13 Predicting MYTH Total Type A Scores (n=118)

<u>Predictor(s)</u>	<u>R²</u>	<u>F</u>	<u>d.f.</u>	<u>Significance</u>
AML Aggression	.40	78.05	1,117	p<.0001
AML Aggression and Dev. Depression	.61	90.89	2,116	p<.0001
AML Aggression, Dev. Depression and Dev. Achievement	.71	95.30	3,115	p<.0001
AML Aggression, Dev. Depression, Dev. Achievement and Hunter-Wolf Total	.73	75.17	4,114	p<.0001
AML Aggression, Dev. Depression, Dev. Achievement, Hunter-Wolf Total and SEIA	.74	64,98	5,113	p<.0001

Table 14 Predicting Hunter-Wolf Total Type A Scores
(n=118)

<u>Predictor(s)</u>	<u>R²</u>	<u>F</u>	<u>d.f.</u>	<u>Significance</u>
MYTH Total	.11	14.25	1,117	p<.0003
MYTH Total and SEIA	.22	16.43	2,116	p<.0001
MYTH Total, SEIA and Dev. Achievement	.25	12.75	3,115	p<.0001

Table 15 Predicting Type A Interview Speech
Stylistics Scores (n=55)

<u>Predictor(s)</u>	<u>R²</u>	<u>F</u>	<u>d.f.</u>	<u>Significance</u>
IAR	.18	12.10	1,54	p<.001
IAR and Hunter-Wolf Total	.27	10.01	2,53	p<.0002

Table 16 · Predicting Type A Interview Response Style
Content Ratings (n=55)

<u>Predictor(s)</u>	<u>R²</u>	<u>F</u>	<u>d.f.</u>	<u>Significance</u>
MYTH Total	.16	10.31	1,54	p<.003
MYTH Total and IAR	.26	19.35	2,53	p<.0003

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APPENDIX

Devereux Behavior Rating Scales

AML

Matthews Youth Test for Health

Demographic Questionnaire

Hunter-Wolf

Individual Achievement Responsibility Questionnaire

Culture-Free Self-Esteem Inventory

Children's Inventory of Anger

Childhood Depression Inventory

Miami Structured Interview Protocol

Miami Structured Interview Rating Sheet

Teacher _____

Date _____

Student _____

A. H. C.
OBSERVER RATING SCALE

Observed Behavior	Scale				
	Never (1)	Seldom (2)	Moderately often (3)	Often (4)	Most or all of the time (5)
1. Gets into fights or quarrels with other students	()	()	()	()	()
2. Has to be coaxed or forced to work or play with other pupils	()	()	()	()	()
3. Is restless	()	()	()	()	()
4. Is unhappy or depressed	()	()	()	()	()
5. Disrupts class discipline	()	()	()	()	()
6. Becomes sick when faced with a difficult school problem or situation	()	()	()	()	()
7. Is obstinate	()	()	()	()	()
8. Feels hurt when criticized	()	()	()	()	()
9. Is impulsive	()	()	()	()	()
10. Is moody	()	()	()	()	()
11. Has difficulty learning	()	()	()	()	()

- | | | | |
|---|-------------------------|---|---|
| 1 | Never | - | You have literally never observed this behavior in this child. |
| 2 | Seldom | | You have observed this behavior once or twice in the last 3 months. |
| 3 | Moderately often | | You have observed this behavior more often than once a month but less than once a week. |
| 4 | Often | | You have seen this behavior more often than once a week but less often than daily. |
| 5 | Most or all of the time | | You have seen this behavior with great frequency, averaging once a day or more often. |

Name of child _____ age _____

Race _____

This rating scale is designed to assess various aspects of a child's behavior. Please mark how well the statement characterizes the child using the following scale:

- | | 1 | 2 | 3 | 4 | 5 |
|---|-------------------------------|------------------|---------|----------------|-----------------------------|
| | extremely
uncharacteristic | uncharacteristic | neutral | characteristic | extremely
characteristic |
| 1. When this child starts games, he/she is competitive. | 1 | 2 | 3 | 4 | 5 |
| 2. This child works busily and energetically rather than slowly and deliberately. | 1 | 2 | 3 | 4 | 5 |
| 3. When this child has to wait for others, he/she becomes impatient. | 1 | 2 | 3 | 4 | 5 |
| 4. This child does things in a hurry. | 1 | 2 | 3 | 4 | 5 |
| 5. It takes a lot before this child gets angry at his/her peers. | 1 | 2 | 3 | 4 | 5 |
| 6. This child interrupts others. | 1 | 2 | 3 | 4 | 5 |
| 7. This child is a leader in various activities. | 1 | 2 | 3 | 4 | 5 |
| 8. This child gets irritated easily. | 1 | 2 | 3 | 4 | 5 |
| 9. He/she seems to perform better than his/her peers in competing against others. | 1 | 2 | 3 | 4 | 5 |
| 10. This child likes to argue or debate. | 1 | 2 | 3 | 4 | 5 |

(PLEASE TURN OVER)

1 2 3 4 5
 extremely uncharacteristic extremely characteristic

11. This child is patient when working with children older than he/she is.

1 2 3 4 5

12. When working or playing, he/she tries to do better than other children.

1 2 3 4 5

13. This child can sit still long.

1 2 3 4 5

14. It is important to this child to win, rather than to have fun in games or schoolwork.

1 2 3 4 5

15. Other children look to this child for leadership.

1 2 3 4 5

16. This child is competitive.

1 2 3 4 5

17. This child tends to get into fights.

1 2 3 4 5

18. How confident are you of the above ratings?

1 2 3 4 5

extremely unconfident

unconfident

neutral

confident

extremely confident

Thank you.

Name _____

Here is a picture of a ladder. At the bottom is a statement: I am very hungry. At the top is a statement: I am not very hungry. Which statement is more like you? Of course, you may be somewhere in between. Put an "X" on the step where you are on this ladder most of the time.

EXAMPLES

- ___ 1 Not very hungry
- ___ 2
- ___ 3
- ___ 4
- ___ 5
- ___ 6
- ___ 7 Very hungry

1. ___ 1 I am easy going.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I am hard driving.

2. ___ 1 I feel time passes quickly.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I feel time passes slowly.

3. ___ 1 I walk fast.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I walk slowly.

4. ___ 1 I take it easy and put little effort into the things I do.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I go all out and put a lot of effort into the things I do.

5. ___ 1 It does matter if I'm late.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 It doesn't matter if I'm late.

6. ___ 1 I always want to win at everything.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I don't care if I win at anything.

7. ___ 1 I often break in and finish when someone else is talking.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I always sit and listen if someone else is talking.

8. ___ 1 I have no interests.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I have many interests.

9. ___ 1 I want to do better in school.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I am satisfied with how well I do in school.

10. ___ 1 I find it difficult to wait.
- ___ 2
 - ___ 3
 - ___ 4
 - ___ 5
 - ___ 6
 - ___ 7 I find it easy to wait.

1. I talk slowly.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

2. I talk fast.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

3. I talk loud.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

4. I talk softly.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

13. I always feel rushed.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I never feel rushed.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

14. I eat slowly.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I eat fast.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

15. I think about many things at the same time.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I think about one thing at a time.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

16. I like to argue.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I don't like to argue.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

24. I lose my temper easily.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I do not lose my temper easily.

17. I often get into fights.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I never get into fights.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

18. I like to tell others what to do.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I don't like to tell others what to do.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

19. It takes a lot to get me angry.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. It takes very little to get me angry.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

20. I am always a leader in activities.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I am never a leader in activities.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

21. My friends always pick me to be leader when we play games.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. My friends never pick me to be leader when we play games.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

22. I drink fast.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I drink slowly.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

23. I have many hobbies.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. I have few hobbies.

Name _____

1. If a teacher praises you in the next game, would it probably be
 - a. because she liked you, or
 - b. because of the work you did?
2. When you do well on a test at school, is it more likely to be
 - a. because you studied for it, or
 - b. because the test was especially easy?
3. When you have trouble understanding something in school, is it usually
 - a. because the teacher didn't explain it clearly, or
 - b. because you didn't listen carefully?
4. When you read a story and can't remember much of it, is it usually
 - a. because the story wasn't well written, or
 - b. because you weren't interested in the story?
5. Suppose your parents say you are doing well in school. Is this likely to happen
 - a. because your school work is good, or
 - b. because they are in a good mood?
6. Suppose you did better than usual in a subject at school. Would it probably happen
 - a. because you tried harder, or
 - b. because someone helped you?
7. When you lose at a game of cards or checkers, does it usually happen
 - a. because the other player is good at the game, or
 - b. because you don't play well?
8. Suppose a person doesn't think you are very bright or clever.
 - a. Can you make him change his mind if you try to, or
 - b. are there some people who will think you're not very bright no matter what you do?
9. If you solve a puzzle quickly, is it
 - a. because it wasn't a very hard puzzle, or
 - b. because you worked on it carefully?
10. If a boy or girl tells you that you are dumb, is it more likely that they say this
 - a. because they are mad at you, or
 - b. because what you did really wasn't very bright?
11. Suppose you study to become a teacher, scientist or doctor and you fail. Do you think this would happen?
 - a. because you didn't work hard enough, or
 - b. because you needed some help, and other people didn't give it to you?
12. When you learn something quickly in school, is it usually
 - a. because you paid close attention, or
 - b. because the teacher explained it clearly?
13. If the teacher says to you, "Your work is fine," is it
 - a. something teachers usually say to encourage pupils, or
 - b. because you did a good job?
14. When you find it hard to work math or arithmetic problems at school, is it
 - a. because you didn't study well enough before you tried them, or
 - b. because the teacher gave problems that were too hard.

5. When you forget something you heard in class, is it
 a. because the teacher didn't explain it very well, or
 b. because you didn't try very hard to remember?
6. Suppose you weren't sure about the answer to a question your teacher asked you, but your answer turned out to be right. Is it likely to happen
 a. because she wasn't as particular as usual, or
 b. because you gave the first answer you could think of?
17. When you read a story and remember most of it, is it usually
 a. because you were interested in the story, or
 b. because the story was well written?
18. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be
 a. because of something you did, or
 b. because they happen to be feeling cranky?
19. When you don't do well on a test at school, is it
 a. because the test was especially hard, or
 b. because you didn't study for it?
20. When you win at a game of cards or checkers, does it happen
 a. because you play real well, or
 b. because the other person doesn't play well?
21. If people think you're bright or clever, is it
 a. because they happen to like you, or
 b. because you usually act that way?
22. If a teacher didn't pass you to the next grade, would it probably be
 a. because she "had it in for you," or
 b. because your school work wasn't good enough.
23. Suppose you don't do as well as usual in a subject at school. Would this probably happen
 a. because you weren't as careful as usual, or
 b. because somebody bothered you and kept you from working?
24. If a boy or girl tells you that you are bright, is it usually
 a. because you thought up a good idea, or
 b. because they like you?
25. Suppose you became a famous teacher, scientist, or doctor. Do you think this would happen
 a. because other people helped you when you needed it, or
 b. because you worked very hard?
26. Suppose your parents say you aren't doing well in your school work. Is this likely to happen more
 a. because your work isn't very good, or
 b. because they are feeling cranky?
27. Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen
 a. because he wasn't able to understand how to play, or
 b. because you couldn't explain it well?

28. When you find it easy to solve arithmetic or math problems at school, is it usually
 a. because the teacher gives you especially easy problems, or
 b. because you have already worked well before you tried them?
29. When you remember something you heard in school, is it usually
 a. because you tried hard to remember, or
 b. because the teacher explained it well?
30. If you can't solve a problem, is it more likely
 a. because you're usually good at working puzzles, or
 b. because the instructions weren't written clearly enough?
31. If you learn to play a game that you are taught or shown, is it more likely
 a. because the instructions are good, or
 b. because of something else?
32. Suppose you are explaining how to play a game to a friend, and he learns quickly.
 Would that happen more often
 a. because you explained it well, or
 b. because he was able to understand it?
33. Suppose you're not sure about the answer to a question your teacher asks you and
 the answer you give turns out to be wrong. Is it likely to happen
 a. because she was more particular than usual, or
 b. because you answered too quickly?
34. If a teacher says to you, "Try to do better," would it be
 a. because this is something she might say to get pupils to try harder, or
 b. because your work wasn't as good as usual?

CULTURE-FREE SEL FORM B

Name _____

Directions

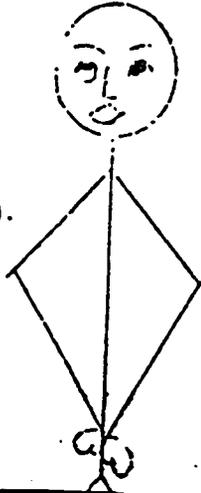
Please mark each statement in the following way: If the statement describes how you usually feel, make a check mark (✓) in the "yes" column. If the statement does not describe how you usually feel, make a check mark (✓) in the "no" column. Please check only one column (either "yes" or "no") for each of the 30 statements. This is not a test, and there are no "right" or "wrong" answers.

		Yes	No
1.	I wish I were younger	<input type="checkbox"/>	<input type="checkbox"/>
2.	Boys and girls like to play with me	<input type="checkbox"/>	<input type="checkbox"/>
3.	I usually quit when my school work is too hard	<input type="checkbox"/>	<input type="checkbox"/>
4.	My parents never get angry at me.	<input type="checkbox"/>	<input type="checkbox"/>
5.	I only have a few friends	<input type="checkbox"/>	<input type="checkbox"/>
6.	I have lots of fun with my parents	<input type="checkbox"/>	<input type="checkbox"/>
7.	I like being a boy / I like being a girl.	<input type="checkbox"/>	<input type="checkbox"/>
8.	I am a failure at school.	<input type="checkbox"/>	<input type="checkbox"/>
9.	My parents make me feel that I am not good enough	<input type="checkbox"/>	<input type="checkbox"/>
10.	I usually fail when I try to do important things	<input type="checkbox"/>	<input type="checkbox"/>
11.	I am happy most of the time	<input type="checkbox"/>	<input type="checkbox"/>
12.	I have never taken anything that did not belong to me.	<input type="checkbox"/>	<input type="checkbox"/>
13.	I often feel ashamed of myself.	<input type="checkbox"/>	<input type="checkbox"/>
14.	Most boys and girls play games better than I do	<input type="checkbox"/>	<input type="checkbox"/>
15.	I often feel that I am no good at all	<input type="checkbox"/>	<input type="checkbox"/>
16.	Most boys and girls are smarter than I am.	<input type="checkbox"/>	<input type="checkbox"/>
17.	My parents dislike me because I am not good enough	<input type="checkbox"/>	<input type="checkbox"/>
18.	I like everyone I know	<input type="checkbox"/>	<input type="checkbox"/>
19.	I am as happy as most boys and girls	<input type="checkbox"/>	<input type="checkbox"/>
20.	Most boys and girls are better than I am	<input type="checkbox"/>	<input type="checkbox"/>
21.	I like to play with children younger than I am.	<input type="checkbox"/>	<input type="checkbox"/>
22.	I often feel like quitting school.	<input type="checkbox"/>	<input type="checkbox"/>
23.	I can do things as well as other boys and girls	<input type="checkbox"/>	<input type="checkbox"/>
24.	I would change many things about myself if I could.	<input type="checkbox"/>	<input type="checkbox"/>
25.	There are many times when I would like to run away from home	<input type="checkbox"/>	<input type="checkbox"/>
26.	I never worry about anything	<input type="checkbox"/>	<input type="checkbox"/>
27.	I always tell the truth	<input type="checkbox"/>	<input type="checkbox"/>
28.	My teacher feels that I am not good enough.	<input type="checkbox"/>	<input type="checkbox"/>
29.	My parents think I am a failure.	<input type="checkbox"/>	<input type="checkbox"/>
30.	I worry a lot.	<input type="checkbox"/>	<input type="checkbox"/>

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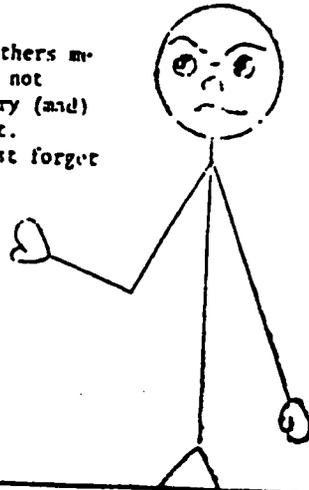
1.

I don't care.
That situation
doesn't even
bother me.
I don't know why
that would make
anyone mad (angry).



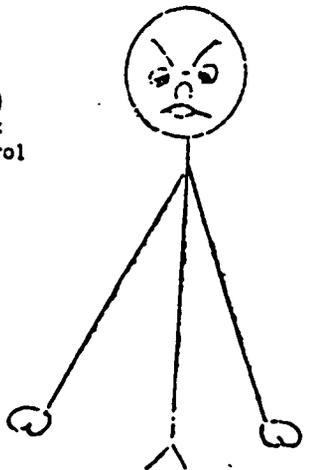
2.

That bothers me
but I'm not
too angry (and)
about it.
I'll just forget
it.



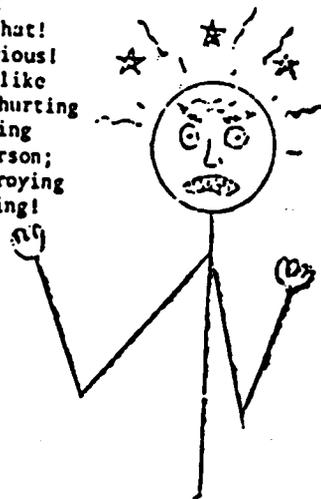
3.

I'm really
mad (angry)
but I think
I can control
myself.



4.

I can't
stand that!
I'm furious!
I feel like
really hurting
or killing
that person;
or destroying
that thing!





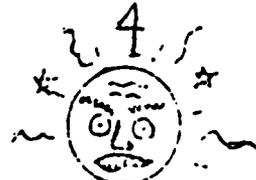
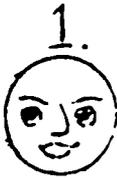
- 1 2 3 4 (1) On the playground a boy (girl) younger than you pushes you down.
- 1 2 3 4 (2) You are right in the middle of your favorite television program and your mother calls you to dinner.
- 1 2 3 4 (3) You convince your mother to let you ride your bike and then you find that it has a flat tire.
- 1 2 3 4 (4) You clean up your room on Saturday and want to go out to play, but your mom says you have to clean out your drawers and closet, too.
- 1 2 3 4 (5) You know you are right about something, but your mom insists that you are wrong.
- 1 2 3 4 (6) Your friends making fun of you.
- 1 2 3 4 (7) You are talking to your brother or sister or friend but he ignores you.
- 1 2 3 4 (8) Being blamed for something that was not your fault.
- 1 2 3 4 (9) You are going to show someone your new trick on your bike and you can't do it again.
- 1 2 3 4 (10) Somebody calls you a "chicken."
- 1 2 3 4 (11) You put your only quarter in the Coke machine and it takes your money.
- 1 2 3 4 (12) Someone in your classroom acts up, so the whole class has to stay after school.
- 1 2 3 4 (13) Someone cuts in front of you in the lunch line.
- 1 2 3 4 (14) You brought your favorite candy bar in your lunch today but when you go to get it out, it's all melted.
- 1 2 3 4 (15) Your mom makes you do a job that was really a job your brother or sister failed to do.



- 1 2 3 4 (16) Your mom refuses to buy your favorite cereal at the grocery store.
- 1 2 3 4 (17) Your friends say that they are going to come over Saturday and they do not come.
- 1 2 3 4 (18) On your bike you come to a steep hill and you have to get off and walk all the way up it.
- 1 2 3 4 (19) You want to go somewhere with a friend but your mom says no without any reason.
- 1 2 3 4 (20) Someone calls you a liar.
- 1 2 3 4 (21) Teachers who give out a lot of homework on the weekend.
- 1 2 3 4 (22) You have to do your homework and your brother or sister is getting to watch T.V.
- 1 2 3 4 (23) While it is raining, you are walking down the street and a car splashes you with mud and water as it drives by.
- 1 2 3 4 (24) While playing a game, someone on the other side tries to rough you up on purpose.
- 1 2 3 4 (25) Being told you are not old enough to do something.
- 1 2 3 4 (26) The teacher's pet gets to do all of the special errands in class.
- 1 2 3 4 (27) It snows, and your parents make you go to school anyway.
- 1 2 3 4 (28) You tell someone a real secret and they blab it to everyone.
- 1 2 3 4 (29) Someone calls your mother a name.
- 1 2 3 4 (30) You are playing a game and someone on the other side tries to cheat.



- 1 2 3 4 (31) You are trying to do your work in school and someone humps your desk on purpose and you mess up.
- 1 2 3 4 (32) You ask your brother (sister) to do something for you and they say "no."
- 1 2 3 4 (33) You are watching T.V. and someone turns it to another station.
- 1 2 3 4 (34) Your brother or sister wears your clothes that you told them not to.
- 1 2 3 4 (35) You see your brother or sister riding your bike when they know they're not suppose to.
- 1 2 3 4 (36) Your mom or dad promises you something and you don't get it.
- 1 2 3 4 (37) Your friends are playing a game but won't let you play too.
- 1 2 3 4 (38) Somebody you don't like punches you.
- 1 2 3 4 (39) Being told "I warned you not to do it" once something goes wrong.
- 1 2 3 4 (40) Your mom says she doesn't want you to see certain friends.
- 1 2 3 4 (41) Your mom yells at you, "balls you out" and embarrasses you in front of other people.
- 1 2 3 4 (42) You do something special for a friend and later they won't do something for you.
- 1 2 3 4 (43) You tell the truth about something but your parents don't believe you.
- 1 2 3 4 (44) The teacher marks X's all over your homework.
- 1 2 3 4 (45) Your friends pick you last to be on a baseball team.



- 1 2 3 4 (46) Your sister breaks your favorite toy after you have asked her not to play with it.
- 1 2 3 4 (47) Your parents won't give you a "yes" or "no" answer but say "we'll see" when you want to plan on doing something.
- 1 2 3 4 (48) Your parents make you eat something you hate (e.g. spinach) in order to "clean your plate."
- 1 2 3 4 (49) You tell your mom that you don't have any homework but she makes you study anyway.
- 1 2 3 4 (50) The bus driver takes your name for acting up on the bus, but everybody else was acting up too.
- 1 2 3 4 (51) You have to go to bed at 9:30 even in the summertime and your friends get to stay up until 10:30 or 11:00.
- 1 2 3 4 (52) Your mom says that you have to do your homework as soon as you get home before you can go out to play.
- 1 2 3 4 (53) You get lost at the shopping center and when you finally find your parents your dad is mad and screams at you.
- 1 2 3 4 (54) At lunch, you select a piece of pie and the kid behind you knocks it out of your hand.
- 1 2 3 4 (55) At school, two bigger kids come and take your basketball and play "keep-away" from you.
- 1 2 3 4 (56) You didn't notice that someone put gum on your seat on the bus you and sit on it.
- 1 2 3 4 (57) You run to catch the bus to go home but just as you get there, it drives away.
- 1 2 3 4 (58) You want to go to sleep, but your brother keeps making noise.
- 1 2 3 4 (59) Every Sunday, the minister talks 20 minutes overtime.
- 1 2 3 4 (60) You accidentally bump into a stranger on the bus and he threatens to beat you up if you get near him again.



- 1 2 3 4 (61) You find a pair of baby kittens or puppies without a mother and your mom says you can't keep them.
- 1 2 3 4 (62) Seeing your mom and dad fight or have a big argument.
- 1 2 3 4 (63) Your friend gets what he wants for Christmas, but you don't.
- 1 2 3 4 (64) Your mother whips you.
- 1 2 3 4 (65) People won't be quiet when you are trying to watch your favorite T.V. show.
- 1 2 3 4 (66) You are playing football or jump rope and the football or rope breaks.
- 1 2 3 4 (67) You drop and break one of your favorite toys.
- 1 2 3 4 (68) You go to your desk in the morning and find out that someone has stolen some of your school supplies.
- 1 2 3 4 (69) Someone in your class tells the teacher on you for doing something.
- 1 2 3 4 (70) Someone spits at you.
- 1 2 3 4 (71) Someone tries to trip you on purpose.

CD INVENTORY

M. Kovacs

Name _____ Age _____ Date _____

DIRECTIONS: Kids sometimes have different feelings and ideas. This form lists the feelings and ideas in groups. From each group, pick one sentence that describe you best for the past two weeks. After you pick a sentence from the first group, go on to the next group. There is no right or wrong answer. Just pick the sentences that best describe the way you have been recently. Put a mark like this - X - next to your answer. Put the X on the line next to the sentence that you pick.

Here is an example of how this form works. Try it. Put a mark next to the sentence that describes you best:

_____ I read books all the time
 _____ I read books once in a while
 _____ I never read books

Remember, pick out the sentence that describes your feelings and ideas in the past two weeks.

1. _____ I am sad once in a while
 _____ I am sad many times
 _____ I am sad all the time
2. _____ Nothing will ever work out for me
 _____ I am not sure if things will work out for me
 _____ Things will work out for me O. K.
3. _____ I do most things O.K.
 _____ I do many things wrong
 _____ I do everything wrong
4. _____ I have fun in many things
 _____ I have fun in some things
 _____ Nothing is fun at all
5. _____ I am bad all the time
 _____ I am bad many times
 _____ I am bad once in a while
6. _____ I think about bad things happening to me once in a while
 _____ I worry that bad things will happen to me
 _____ I am sure that terrible things will happen to me
7. _____ I hate myself
 _____ I do not like myself
 _____ I like myself

8. All bad things are my fault
 Many bad things are my fault
 Bad things are not usually my fault
9. I do not think about killing myself
 I think about killing myself but I would not do it
 I want to kill myself
10. I feel like crying everyday
 I feel like crying many days
 I feel like crying once in a while
11. Things bother me all the time
 Things bother me many times
 Things bother me once in a while
12. I like being with people
 I do not like being with people many times
 I do not want to be with people at all
13. I cannot make up my mind about things
 It is hard to make up my mind about things
 I make up my mind about things easily
14. I look O.K.
 There are some bad things about my looks
 I look ugly
15. I have to push myself all the time to do my schoolwork
 I have to push myself many times to do my schoolwork
 Doing schoolwork is not a big problem
16. I have trouble sleeping every night
 I have trouble sleeping many nights
 I sleep pretty well
17. I am tired once in a while
 I am tired many days
 I am tired all the time
18. Most days I do not feel like eating
 Many days I do not feel like eating
 I eat pretty well
19. I do not worry about aches and pains
 I worry about aches and pains many times
 I worry about aches and pains all the time
20. I do not feel alone
 I feel alone many times
 I feel alone all the time

21. I never have fun at school
 I have fun at school only once in a while
 I have fun at school many times
22. I have plenty of friends
 I have some friends but I wish I had more
 I do not have any friends
23. My school work is all right
 My school work is not as good as before
 I do very badly in subjects I used to be good in fixed
24. I can never be as good as other kids
 I can be as good as other kids if I want to
 I am just as good as other kids
25. Nobody really loves me
 I am not sure if anybody loves me
 I am sure that somebody loves me
26. I usually do what I am told
 I do not do what I am told most times
 I never do what I am told
27. I get along with people
 I get into fights many times
 I get into fights all the time

THE END

Thank you for filling out this form.

MIAMI STRUCTURED INTERVIEW

Hello (student's name). How are you? My name is (interviewer). (Student's name), a lot of people talk about what kids do, but they don't very often ask the kids themselves. I would like to ask you about some of the things you do and how you feel about them. O.K.? Would it be all right if I tape-recorded our talk so I could listen to it later?

- A. ATTACH MICROPHONE
- B. START RECORDER
- C. OBSERVE TAPE MOVING

- a. Please tell me your full name.
 - b. What do you like to be called?
 - c. How old are you?
- 1a. What game do you like playing most?
 - 1b. What do you like about playing (name of game)?
If the response resembles "I don't like to play games," ask: Why don't you like to play games?
 - 1c. Do you play (name of game) for fun or to win?
 - 2. Do you like doing better than other kids, like in school, sports, games or other things?
 - 3a. Do you like challenges like solving puzzles, riddles, or answering questions?
 - 3b. Do you like these challenges better if other kids have a hard time doing them?
 - 4a. Do you like to be busy doing things all the time?
 - 4b. "Yes" What kinds of things do you like to do?
"No" What do you do in your free time?
 - 5a. When you have to wait for a long time, like in a line, what do you do?
 - 5b. Then what?
 - 5c. When you have to wait for a long time, how do you feel?
 - 6a. When you're working with a classmate or friend who is working slower than you are and is slowing you down, how do you feel?
 - 6b. What would you do about it?
 - 7a. What kinds of things make you mad?
 - 7b. When you do get mad, what do you do?
 - 8a. Does it take a lot to get you angry or do you get angry easily?
 - 8b. Why do you say that?
 - 9a. Do you ever feel rushed to get things done?
 - 9b. When does this happen?
 - 9c. Does this occur very often?
 - 10. Most kids who go to school get up fairly early in the morning. In your particular case uh-what-uh-wha, wha, wha, what-uh-time-uh-do-uh-you-uh usually get up in the morning?

Child's Name: _____ School: _____ Rater: _____

Children's Type A Interview

Directions: Check only one column for each item. Be sure to rate each child on every item. Use the space at the bottom of the page to note any questions.

	<u>A</u>	<u>B</u>	
1. A general expression of vigor, energy, alertness, confidence	_____	_____	1. A general expression of relaxation. calm & quiet attentiveness.
2. Loud &/or vigorous voice.	_____	_____	2. Mellow voice, low volume.
3. Terse speech and abbreviated responses.	_____	_____	3. Lengthy, rambling responses.
4. "Clipped speech"-failure to pronounce end sounds of words.	_____	_____	4. No evidence of "clipped speech."
5. Rapid speech and acceleration of of speech at the end of long sentences.	_____	_____	5. Slow to moderate pacing of verbal responses - no acceleration of speech at the end of sentences.
6. "Explosive speech"- certain words emphatically expressed as a general pattern of speech.	_____	_____	6. Minimal inflection, almost monotone with no explosive qualities.
7. Interrupting, with frequently rapid responses before the other person is done speaking.	_____	_____	7. Rarely interrupts.
8. Speech hurrying-ex. saying "Yes, yes" as the other person speaks.	_____	_____	8. No "speech hurrying."
9. Vehement reactions to questions about impediments in time.	_____	_____	9. No vehement reactions to questions about impediments in time.
10. Frequent sighing about questions about work (school).	_____	_____	10. Rarely sighs.
11. Hostility directed at interviewer or topics of the interview.	_____	_____	11. Hostility rare or absent.
12. Frequent, abrupt one word responses ("definitely," "of course").	_____	_____	12. Absence of emphatic one word responses.

Notes/Observations:

Classification: _____

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