

A COMPARISON OF MANIFEST ANXIETY LEVELS IN MENTALLY RETARDED STUTTERERS
A COMPARISON OF MANIFEST ANXIETY LEVELS IN MENTALLY RETARDED STUTTERERS
AND NONSTUTTERERS AS MEASURED BY THE CHILDREN'S
MANIFEST ANXIETY SCALE

PAUL KAREL STRAUSS, B.A.

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THESIS

Presented to the Faculty of the Graduate School of

The University of Texas in partial fulfillment

APPROVED:

of the Requirements

For the Degree of

MASTER OF ARTS

Jesse Villacreal
Gennart Kopra
Charles E. Cleland

THE UNIVERSITY OF TEXAS

Austin, Texas

August 1967

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ACKNOWLEDGMENTS
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I wish to thank the MANIFEST ANXIETY SCALE to Doctors
Jesse J. Villarreal, Lennart L. Kopra, and Charles C. Cleland for
the patient and invaluable assistance they have given me in the
preparation of this thesis.

I also wish to thank PAUL KAREL STRAUSS, B.A. in association to
Mrs. Margaret Oliver for her enthusiastic assistance and support
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As with stuttering, investigators in the field of mental retardation have found Wischner's "need for consideration" of anxiety reactions to exist in their attempts to understand the emotional character of the retarded individual. Rutt and Gibby (13, p. 145) state that:

The proposition that retarded children experience more anxiety than other children is supported generally by the research evidence which has accumulated in recent years. This is certainly the case for overt or manifest anxiety, or in other words, in anxiety which is consciously visible to others and which is experienced by the individual as apprehension of an immediate situation.

While the effects of anxiety on stutterers and mentally retarded individuals have been considered at some length by investigators dealing with separate populations (i.e., stuttering-populations or mentally retarded populations), apparently no attention

CHAPTER I

THE PROBLEM AND DEFINITION OF THE TERMS USED

"Anxiety," "hostility," "tension," and other emotional states have long been considered factors which contribute to the frequency and severity of stuttering. Wischner (36, p. 142) has stated that ". . . practically every worker in the field, including those who espouse physiological factors as basic to stuttering, recognize the need for consideration of emotional--fear and anxiety --reactions in the understanding and treatment of the stuttering problem." Santostephano (24, p. 346), in administering the Rorschach test to a group of stutterers and nonstutterers, reported that the stutterers projected on the Rorschach ". . . significantly more content indicative of anxiety and hostility than did nonstutterers."

As with stuttering, investigators in the field of mental retardation have found Wischner's "need for consideration" of anxiety reactions to exist in their attempts to understand the emotional character of the retarded individual. Hutt and Gibby (13, p. 145) state that:

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While the effects of anxiety on stutterers and mentally retarded individuals have been considered at some length by investigators dealing with separate populations (i.e., stuttering populations or mentally retarded populations), apparently no attention

of any decisive nature has been directed toward determining the significance of the anxiety state in the mentally retarded stutterer. A common denominator becomes apparent when one examines the latter portion of the foregoing description of manifest anxiety by Hutt and Gibby (*italics added*):

. . . anxiety which is consciously visible to others *and which is experienced by the individual as apprehension of an immediate situation.*

This appears closely related to, if not identical with, the type of anxiety experienced by the stutterer when confronted by specific speech sounds, words, or situations.

I. THE PROBLEM

Statement of the problem. It was the purpose of this study to compare manifest anxiety levels in mentally retarded stutterers and mentally retarded nonstutterers through application of one type of objective measurement, the Children's Manifest Anxiety Scale (Appendix, p. 30).

Importance of the study. Luper and Mulder (17), in an attempt to indicate that an indirect therapy approach may be insufficient or inappropriate in dealing with a young stutterer whose symptoms appears to persist or increase, have equated the speech anxiety or concern felt by the stutterer with "drive," a term derived from Hull's drive reduction theory. According to Hull's theory, a reduction in anxiety (or drive) following the completion of the stuttering act would serve to condition the subject to react with greater anxiety when again anticipating a speech situation. This approach to stuttering will be discussed more thoroughly in another section of this study.

In addition, Cantor (3, p. 94) has indicated that a behavior theory of the type developed by Hull may be ". . . of considerable utility in explaining defective behavior . . ." (referring to the mentally defective).

Wischner, in referring to the work of Dollard and Miller (8) and Mowrer (20), has stated that:

Certain studies suggest that stuttering anxiety, at least in specific experimental situations, has certain functional properties which are similar to those assumed for other kinds of experimentally manipulated anxiety. The stimulus for these particular investigations has derived largely from experimental work on anxiety by learning psychologists (36, p. 151).

If this is true, then it follows that a stuttering population should show a higher drive level than a nonstuttering population, as determined by an accepted measure of drive level. This study attempts to determine whether anxiety level, as measured by the Children's Manifest Anxiety Scale, is significantly higher for mentally retarded subjects who stutter than for mental retardates who do not stutter, the hypothesis being that the stuttering subjects' anxiety and fears concerning speech sounds, words, and situations will have the effect of raising the subjects' anxiety level, or drive level, as measured by the CMAS, to a level significantly above that of the nonstuttering group. This study appears unique in that it relates the concepts of (A) drive theory and (B) manifest anxiety to the conditions of (C) mental retardation and (D) stuttering in a manner which apparently has not been previously attempted.

II. DEFINITIONS OF THE TERMS USED

Anxiety. Hilgard (10, p. 614) has defined anxiety as ". . . a state of apprehension or uneasiness related to fear." He states further that "The subject of anxiety (e.g., a vague fear or foreboding) is ordinarily less specific than the object of fear (e.g., a vicious animal)."

In another publication (11, p. 298) Hilgard has listed three types of anxiety, the first of which he indicates is indistinguishable from fear, as follows:

1. *Objective anxiety* (also called real or true anxiety) depends upon real or anticipated danger whose source lies in the external world . . . True anxiety implies a real known danger.

2. *Neurotic anxiety* is in regard to an unknown danger. Upon analysis it is found that the danger is, as Freud put it, an instinctive one. That is, a person is afraid of being overpowered by some impulse or thought that will prove harmful to him. Sometimes there is a real or threatened danger, but the reaction to it is excessive, thus revealing the neurotic element in the anxiety.

3. *Moral anxiety* is aroused by a perception of danger from the conscience (superego). The fear is that of being punished (belittled, degraded) for doing something that is contrary to the ego ideal. Moral anxiety is experienced as feelings of guilt or shame.

Hutt and Gibby (13, p. 145) are a little more definite about their views concerning the relationship of anxiety to fear than is Hilgard. They state emphatically that "anxiety is not the same as fear." They prefer to limit the categories of anxiety types to two, the first being *overt*, or *manifest* anxiety, which they describe as ". . . consciously visible to others and which is experienced as apprehension of an immediate situation," and the other type being "covert," "basic," or "general" anxiety.

Cameron (2, pp. 146-147) has defined anxiety as follows:

When a person is exposed to fear excitants and cannot flee, his immediate *overt* behavior is likely to be that of shrinking, hiding or remaining very quiet and still. His covert reactions, however, are not essentially different from those one sees preparatory to flight, even though flight is now impossible and may not even be contemplated. Among other changes, the pulse, blood pressure, and respiratory rate increase, gastro-intestinal functions alter characteristically, kidneys are overactive, tremors and other signs of skeletal tensions appear, the pupils dilate, sweating is present and the mouth goes dry. These responses are all part of the anxiety reaction.

We designate as anxiety the predominantly covert skeletal and visceral reactions which, for an unhampered and uninhibited person, constitutes the normal preliminary phase of emotional flight, but which for some reason is prevented from going on into its consummatory phase. In this sense, anxiety is an incomplete or amputated emotional reaction, one that becomes intelligible only when it is understood as originally the preliminary phase of an unconsummated act.

This latter definition is the one utilized by Taylor (29) as a criterion in developing the anxiety items for her manifest anxiety scale. As an accepted definition of "manifest anxiety," it best describes the phenomenon with which this study is concerned.

REVIEW OF THE LITERATURE

A considerable amount of time and effort has been spent by various investigators of stuttering, trying to determine what role anxiety plays in this disorder. The terms "anxiety," "expectancy," "anticipation," etc., have been used, in the words of Wischner (36, p. 139) "... if not always synonymously, at least in a context suggesting that the referents of these terms are highly interrelated." Despite a rather haphazard use of terms, interest in the role of anxiety as it pertains to stuttering continues.

In the area of mental retardation, it is generally agreed that anxiety, specifically manifest anxiety, presents a problem of considerable significance to the retarded individual. Hutt and Gibby (13, p. 145) have stated: "It is our contention that retarded children are, in general more prone to develop intense anxieties than other children." These authors feel that this is particularly true in the case of "overt," or "manifest" anxiety.

One of the most frequently used measures of manifest anxiety in the retarded individual has been the Children's Manifest Anxiety Scale. The following review presents a brief summary of the literature covering research on four subjects with which this study is concerned: (A) the relationship of anxiety to stuttering, (B) the relationship of anxiety to the condition of mental retardation, (C) the incidence of stuttering in a retarded population, and (D) the Children's Manifest Anxiety Scale.

I. LITERATURE ON ANXIETY AND STUTTERING

Johnson (14, p. 23) has stated that stuttering seems to be an "anxiety-motivated avoidance response that becomes conditioned to the cues or stimuli associated with its occurrences." It is further stated by Johnson that responses of this type are anticipatory and that anticipation of the response is apprehensive, characteristic.

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REVIEW OF THE LITERATURE

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(PFAGR) represents penality, frustration, anxiety, guilt, and hostility; (SFWE) represents (a) situational fears generated by past stuttering experiences in similar situations, and (b) "word and phonetic fears based on memories of past stuttering unpleasantness in similar situations";

I. LITERATURE ON ANXIETY AND STUTTERING

Johnson (14, p. 23) has stated that stuttering seems to be an "anxiety-motivated avoidant response that becomes conditioned to the cues or stimuli associated with its occurrences." It is further stated by Johnson (14, pp. 23-24) that responses of this type are anticipatory and that anticipation of the response is apprehensive, characterized by some degree "ranging from near panic to the very mild sort of affective reaction which the stutterer expresses by saying simply that he would rather not stutter--an affective condition or state which we might refer to as 'rather-not-ness'" Johnson indicates that if the stuttering anxiety is lessened, the severity and frequency of occurrence of stuttering also decreases, stating as follows:

The more intense the speaker's anxiety or concern over the anticipated "stuttering," the more cues it is likely to become associated with, so that the avoidant responses will occur more frequently, and the more intense or elaborate or prolonged or severe the avoidant responses will be on the average. As the anxiety about stuttering is weakened, therefore, both the frequency and the severity of the avoidant reactions--the stuttering, that is--are reduced. Improvement is a function, then, of anxiety de-confirmation (14, p. 24).

Johnson's statement indicating that de-confirmation of anxiety is a prime factor in improvement of the stutterer's speech presents an idea which is inherent in the formula devised by Van Riper (31, p. 354) to demonstrate the factors which increase or decrease the frequency and severity of stuttering, as indicated:

$$\frac{(PFAGH) + (SfWf) + Cs}{M + Fl} = \text{Stuttering frequency and severity}$$

In the numerator of this equation, (PFAGH) represents penalty, frustration, anxiety, guilt, and hostility; (SfWf) represents (a) situational fears generated by past stuttering experiences in similar situations, and (b) "word and phonetic fears based on memories of past stuttering unpleasantness in similar situations";

Cs represents what Van Riper terms the "communicative importance of what is being said" (31, p. 354).

In the denominator, the symbol M represents "morale or ego strength or self-confidence" while F1 is described as representing the "amount of felt fluency" (31, p. 309).

Van Riper states that "the task of therapy is to weaken each of the numerator and to strengthen the denominator" (31, p. 355).

Wischner (36) has reviewed with competence some of the literature concerning anxiety and stuttering. Wischner describes stuttering anxiety as falling within two general categories: "general situational anxiety" and "specific word anxiety" (36, p. 143). Studies by Schulman (27), Porter (21), Hahn (9), and others are described in which the two types of anxiety (or expectancy) mentioned are treated as intervening variables, one being varied experimentally while the other is held constant. It is Wischner's conclusion that stuttering behavior provides "an excellent opportunity for the study of anxiety, not only as it operates in stuttering, but also as it functions in other forms of maladaptive behavior" (36, p. 152).

Luper and Mulder, in a recent treatment of stuttering in children (17), make extensive use of the concept of anxiety as a significant one in the description of stuttering behavior. A reference is made earlier to this treatment, which relates anxiety to Hull's drive reduction theory of learning (12). In terms of this theory, the probability of the stutterer's reacting to any speech situation, word, or sound with a stuttering response is determined by a multiplicative relationship between (a) the dominant habit-response in a hierarchy of habit-responses, in this case, the stuttering response, and (b) the drive level, or level of anxiety, hostility, fear, etc. In these terms, an increase in drive level, or anxiety level, will enhance the probability of the stutterer reacting in a stuttering manner in a speech situation. The resulting reinforcement of the dominant habit-response (i.e., the stuttering response) will in turn increase the drive level, due to the

aforementioned multiplicative relationship. Luper and Mulder paraphrase from Hull's theory, as follows:

. . . the stimulus of anxiety leads to a response of excess tension in the speech musculature. Each time this particular pattern is repeated--the combination of anxiety, tension, and subsequent anxiety reduction--the possibility of excess tension becoming habitually attached to the stimulus of anxiety is increased (17, p. 76).

Van Riper would seem to have had something of this nature in mind when he stated that "speech disorders may have their origins in emotional storms: in turn they may provoke emotion" (31, p. 66).

The significance to this study of the approach to stuttering taken by Luper and Mulder becomes most apparent when one considers that the measure of manifest anxiety from which the Children's Manifest Anxiety Scale was adapted--the Taylor Manifest Anxiety Scale (30)--was originally designed as a measure of Hullian drive level.

It appears that experimenters agree that there exists a relationship between "anxiety" and the frequency and severity of stuttering, although they are by no means agreed as to the exact nature of this relationship. Some have related stuttering anxiety to Hullian "drive level," a concept developed by learning theorists.

II. LITERATURE ON ANXIETY AND MENTAL RETARDATION

Cromwell (7, p. 58) quotes Moss (19) in describing the mentally retarded person as a failure-avoiding person . . . one with a very low generalized expectancy for success who responds primarily to cues in the environment (negative cues) which lead to the prevention of additional failure." Hutt and Gibby (13, p. 148) are in agreement with this, stating that ". . . mentally retarded individuals have lower needs to achieve than do normal children." They state further that ". . . decreased need to achieve may be the resultant of persistent anxiety."

The position of Hutt and Gibby on the importance of anxiety is borne out by the conclusions of a study by Cochran and Cleland (6) in which seventy-five normal fourth grade students and thirty-seven mentally retarded students who had reached a fourth grade achievement level were administered the Children's Manifest Anxiety Scale. When results were compared, it was found that the mentally retarded group was "significantly more anxious than normal fourth grade students of their respective sex." In addition to comparing groups of similar achievement levels, these authors compared subjects within their two groups of the same chronological age in order to eliminate what they termed "the normal stresses of adolescence" as an intervening variable. Again, they found that the mentally retarded subjects showed a higher level of anxiety.

In a study by Wiener, Crawford, and Snyder (34) it was concluded that high anxiety levels prevented mildly retarded children from achieving academically to a degree appropriate for their capacity. In another study, utilizing the Children's Manifest Anxiety Scale, Malpass, Mark, and Palerma (18) measured anxiety levels in forty-one noninstitutionalized mentally retarded children, fifty-three institutionalized retarded children, and sixty-three normals. They found that both groups of retarded children were significantly "more anxious" than the normal children. Similar results were obtained in a study by Warren and Collier, in a study designed specifically to:

... (a) investigate the validity of the CMAS as a measure of anxiety, (b) to determine whether the institutionalized mentally retarded distributed themselves on the test, and (c) to compare high grade retardates with moderately retarded and with the Iowa "normal" sample of this test . . . (32, p. 192).

This study is discussed in greater detail in the final section of this chapter.

To summarize, the idea that the retarded person is liable to demonstrate a higher anxiety level than the nonretarded individual seems to be generally accepted.

III. LITERATURE ON INCIDENCE OF STUTTERING

AMONG AMENTS

Schlanger and Gottsleben (25) have indicated that the incidence of stuttering in a mentally retarded population is considerably higher than the incidence in the normal population. However, they included individuals whom they termed "primary stutterers," disfluent individuals who were considered to be unconcerned or unaware of the deviant speech patterns they exhibited. This procedure violates a criterion some speech pathologists consider necessary. For example, Robinson (23, p. 44) has this criterion in mind when he says that "speaker awareness colored by distress is assumed before the label of stutterer or stammerer is applicable."

It is possible that this writer's insistence on meeting the criterion expressed by Robinson accounted for the fact that fewer stutterers were found than would be expected from the 17 percent incidence reported by Schlanger and Gottsleben for an institutionalized, mentally retarded group. These authors make the statement that "secondary reactions were observed in 26 percent of the stutterers." Robinson (23, p. 44) indicates that ". . . evaluational theorists tend to deny the validity of this dichotomous classification. Their concept of stuttering doesn't include the primary stage." If this premise is accepted, then it appears that only 26 percent of Schlanger and Gottsleben's "stutterers" (4.5 percent of the retarded population screened by them) did, in fact, stutter.

Cabanas (1) reports an interesting study supporting the point of view presented by Robinson. As a result of observing fifty mongoloid children with speech defects over a period of two years, he states that:

It is evident that real stammering does not exist in cases of low IQ because of the lack of self-observation and self-consciousness about speech . . . in our opinion, the symptomology of speech in cases of mongolian children is rather of the cluttering type.

The statement that "real stammering does not exist" among aments would seem to be an obvious over-statement and need not be considered. The basis on which Cabanas makes the statement, however, appears significant. Cabanas states that in the group of children being observed there was a lack of (a) block anticipation, (b) use of "synonyms, deviations and omissions of grammatical elements due to the conscious efforts of avoiding words . . . , and (c) magic words, abnormal respiratory movements, etc." These subjects appear not to have fulfilled the requirements of Johnson's definition of stuttering as an "anticipatory, apprehensive hypertonic avoidance reaction" (15, p. 216).

While the present study does not concern itself primarily with the incidence of stuttering in a retarded population, it is interesting to note that in one institution, in which the writer was permitted to interview initially each child in the school rather than depending on the teacher-interview method, five persons were accepted as appropriate subjects for the experimental group, out of a total school population (educables and trainables) of approximately 425.

The proposition that the incidence of stuttering among retardates is not many times greater than among normals is consistent with findings in a study by Karlin and Strazzula (16) who examined fifty noninstitutionalized mentally retarded children in a pediatric clinic to obtain developmental data and to determine the relationship of laterality development to IQ. They state that "stuttering was present in one of the fifty children included in the study, which is approximately the same percentage (2 percent) that is usually given for the number of stutterers found in the normal school population" (16, p. 290).

It appears probable, from the evidence noted here, that the incidence of stuttering in a retarded population closely approaches incidence figures for a nonretarded population, provided that one accepts as valid the condition of speaker awareness, or self-labelling by the stutterer.

IV. THE CHILDREN'S MANIFEST ANXIETY SCALE (CMAS)

Two commonly accepted measures of Hullian drive level have been the Children's Manifest Anxiety Scale as described by Castaneda *et al* and the Taylor Manifest Anxiety Scale (29), the latter scale being the parent instrument from which the children's scale was derived. Both of these scales have been targets of criticism in the past. Wirt and Brown (35), for instance, could not find a positive correlation between clinical "anxiety" as rated by psychologists and scores on the Children's Manifest Anxiety Scale. Similar findings were noted by Shatin (26) in relation to the Taylor Manifest Anxiety Scale. Shatin compares MAS scores with clinical ratings of anxiety, depression, instability, and hostility in non-psychotic male psychiatric patients and found that while a relationship existed between the total pathology scores on their clinical rating scale and manifest anxiety as measured by the Taylor scale, he was unable to demonstrate a significant correlation between Taylor Manifest Anxiety Scale scores and anxiety items on the clinical rating scale. Shatin's research results apparently support a statement by Taylor concerning her scale, as follows:

The construction of the test was not aimed at developing a clinically useful test which would diagnose anxiety, but rather was designed solely to select Ss differing in general drive level. Thus the question of the scale's validity (i.e., its agreement with clinical judgments) is in a sense irrelevant to the experimental purpose for which it is developed. In light of this, the test might have been given a more noncommittal title . . . (30, p. 303).

Taylor states in the same article, however, that:

. . . the fact that the items on the scale were selected by clinicians as referring to manifest anxiety as it is described psychiatrically does not make the title completely inappropriate (30, p. 303).

Taylor's statement describing the title of the Taylor Manifest Anxiety Scale as "not completely inappropriate" is, in fact, supported by recent studies using the Children's Manifest Anxiety Scale. Malpass, Mark, and Palermo found that:

CMAS scores significantly differentiated educable mentally handicapped from institutionalized retardates . . . both groups of retarded children had significantly higher ("more anxious") scores than normal children (18, p. 308).

Warren and Collier (32), attempting to determine whether the Children's Manifest Anxiety Scale did, in fact, measure the clinical concept of anxiety as defined by Cameron (2), found a significant positive correlation between CMAS scores, clinician's ratings of anxiety indicated by Ss, and behavior check list scores. Validity of the CMAS as a measure of anxiety was investigated in two ways:

(1) CMAS scores for fifty-four Ss were correlated with judgments of anxiety made by clinical psychologists to whom the CMAS scores were unknown, and (2) CMAS scores were correlated with scores on a behavior check list developed for this study and checked by psychiatric aides supervising these patients at least eight hours a day.

Scores on the twenty-five item check list were determined by the number and degree of symptoms marked for each subject.

As further positive evidence for the validity of the CMAS as a measure of anxiety, Warren and Collier point to a study (33) in which they found that mentally retarded subjects who showed "a high discrepancy between the Wechsler IQ and the revised Columbia Mental Maturity Scale in favor of the latter," also showed high CMAS scores for their population, whereas when Wechsler scores exceeded Columbia scores, CMAS scores were relatively low. They point out that the "Wechsler is considered to have tests sensitive to 'anxiety' and the Columbia can be assumed not to have much of this characteristic." Warren and Collier indicate that "'anxiety' which depresses the Wechsler score occurs in the same patients where there is high 'anxiety' measured by the CMAS." These authors explain the negative findings of other investigators--Wirth and Broen (35) and Shatin (26)--as being due to the procedural faults and misinterpretation of results.

Data obtained by Warren and Collier resulted in a test-retest reliability score of .89, a finding similar to results obtained by Pryer and Cassel, (22).

In discussing their results, Warren and Collier state that:

. . . since all correlations between measures of "anxiety" based on ratings by observers and the CMAS . . . are positive and many of them are fairly high, there seems reason to believe that what the CMAS measures overlaps with which clinicians call "anxiety."

Much of the study dealing with the CMAS, as this review shows, has concerned itself with the gathering of evidence for or against the usefulness of the scale as a measurement of "anxiety." In general, early studies placed the CMAS and its parent scale, the Taylor MAS, in an unfavorable light in terms of measuring "anxiety," whereas later studies tended to validate the scale in this respect.

In conclusion, it appears that while investigators are not always in agreement as to what they mean by anxiety, they *are* in general accordance with the proposition that anxiety is a factor to be reckoned with when dealing with a stuttering problem.

Moreover, there is general agreement that the mentally retarded population is a "more anxious" group than the nonretarded population.

Opinions are anything but unanimous, however, concerning the incidence of stuttering among aments, a possible reason being a lack of uniform definition of the term, "stuttering."

Finally, it appears that while early experiments resulted in serious questioning of the effectiveness and appropriateness of the Children's Manifest Anxiety Scale as a measure of manifest anxiety, more recent, highly-controlled studies indicate that the scale is, indeed, a useful instrument in this respect.

where it was not convenient to do this, the subjects in question were sent to the examiner upon referral by their classroom teacher.

Whether a subject was referred by a teacher or chosen initially by the writer, an **CHAPTER III** place for each candidate just prior to an individual testing session during which the child

SUBJECTS AND PROCEDURE

(a) about a speech problem, (b) how long he had been aware of it if a problem existed, (c) whether he had a name or label for it. **I. SUBJECTS**

the person was who first identified and labelled the problem as

stuttering. Subjects for this study consisted of twenty institutionalized mentally retarded stutterers and twenty institutionalized mentally retarded nonstutterers, matched for chronological age, sex, and IQ.

Both groups were chosen from the academic and training programs of five schools for mentally retarded in Texas, as follows: the Austin State School, the Travis State School, the Mexia State School, the Abilene State School, and the Denton State School. In addition, one stutterer was chosen from the population of the Brown School Junior Ranch, an institution located in Austin, Texas, and devoted to the care and education of exceptional children in a residential setting.

Choosing of subjects for the experimental group, in the majority of cases, was done initially by the teacher-referral method. That is, a teacher or school principal would decide whether or not, in their judgment, a child was a stutterer, and if the decision was affirmative, the child would be referred to the examiner.

In two of the schools, it was possible for the examiner to go from classroom to classroom, obtaining initial speech samples from the children in the classrooms. These initial speech samples consisted of having each child state his name, and home town, how long he had been at the school, and so on. On these occasions, the examiner made the initial decision as to whether or not the child should be included in the experimental group. In the other schools,

where it was not convenient to do this, the subjects in question were sent to the examiner upon referral by their classroom teacher. Whether a subject was referred by a teacher or chosen initially by the writer, an interview took place for each candidate just prior to an individual testing session during which the child was questioned (a) about his awareness of having a speech problem, (b) how long he had been aware of it if a problem existed, (c) whether he had a name or label for the problem, (d) what the identity of the person was who first identified and labelled the problem as stuttering, and (e) whether there was a history of stuttering in the family. This procedure was carried out to satisfy the criterion of "speaker awareness" referred to by Robinson (23, p. 44). Many of the teacher-referred subjects exhibited articulation problems of every form and degree of severity, and apparently were referred in the mistaken belief that any sort of speech deviation constituted "stuttering." These were quickly eliminated from consideration by the examiner. Subjects for the experimental group were chosen on the basis of (a) whether or not they exhibited observable disfluency and/or struggle in speaking, and (b) whether or not the subject indicated an awareness of the existence of a fluency problem. Of the sixteen males and four females chosen for the experimental group, nineteen stated that they "stuttered," and one girl stated that she had a "disfluency." Thirteen of these subjects were able to single out a person or persons who, they said, were the first to discover the existence of a fluency problem and attach a label to it. Eleven of these subjects indicated that the person so designated was a parent while the other two named a school teacher. Nine of the subjects had received speech therapy, over periods of time ranging from three months to two years.

III. TEST PROCEDURE

Levels of IQ for the experimental group ranged from 37 to 78, with a mean IQ of 58. Nine of the stuttering subjects fell within the 60-80 IQ range, ten of these subjects were within the

60-80 IQ range, ten of these subjects were within the 40-60 IQ range, and one subject had an IQ of 37. This latter score was considered misleading by the principal of the school in which the subject was enrolled, because the child came from a bilingual home where English was spoken as a second language. The child's relatively poor command of English was suggested as having a depressing effect on the child's intelligence test performance.

Members of the control group consisted of twenty mentally retarded nonstutterers matched as closely as possible to the experimental group in terms of sex, chronological age, and IQ.

II. THE CMAS (CHILDREN'S MANIFEST ANXIETY SCALE)

This scale consists of forty-two anxiety items and eleven lie items, the lie items being interspersed randomly among the anxiety items. The original propose of the lie items was to supply an index of a subject's tendency to falsify his answers on the anxiety scale. While it has been found that retardates, as a group, score higher on the lie scale than nonretarded subjects, Warren and Collier (32) have indicated that this is probably due to the retardate's inadequacy at self-appraisal, rather than a deliberate attempt to lie.

The anxiety scale is scored by adding all affirmative answers. Each of these affirmative answers receives a numeral score of 1.

The lie score is calculated in the same manner, with the exception of two items, which if answered negatively, contribute to the lie score.

III. TEST PROCEDURE

Following the interview to determine whether a person was an appropriate (stutterer or nonstutterer) subject for either the

experimental or control group, the Children's Manifest Anxiety Scale was administered in a manner similar to the procedure followed by Warren and Collier (32). Test procedure differed from that of Warren and Collier in that each subject was tested individually. Test items were presented orally in the second person, eliminating the necessity for the subjects' having to read the items, and removing the possibility of confusing the subject as to whether the test items referred to him or to the examiner. There was no indication that the subjects experienced any difficulty in understanding the test items or that they experienced difficulty in responding appropriately. The subject was asked to respond with a "yes" or "no" to each test item as it was presented, and the examiner recorded each subject's response. mean was 20.0, and thirty-nine male, institutionalized retardates tested by Warren and Collier, in which the mean was 19.3, indicates that anxiety score means for the two groups are practically identical. This is interpreted as one indication that this study's control group is representative of the retarded population in general, at least insofar as anxiety levels are concerned.

It should be noted that Warren and Collier found a "consistently higher" anxiety score mean for MR females with a mean score of 26.0 for 30 subjects than for their MR male group. This is in accordance with other studies involving the Children's Manifest Anxiety Scale (4, 5). The small number of female subjects included in this study precluded any significant conclusions being drawn in this area.

Table II presents the raw data obtained from the experimental group consisting of twenty mentally retarded stutterers, together with means and standard deviations for each variable. These scores were combined with those for the control group (Table I) and the combined scores were then subjected to a computerized, MVAR (multivariate analysis of regression) statistical program, with anxiety score as a criterion, in order to determine whether (a)

TABLE I
 DESCRIPTIVE INFORMATION AND ANXIETY SCORES FOR
 TWENTY NONSTUTTERING RETARDATES

Sex	IQ	A-Score	L-Score	CA
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RESULTS

Table I presents the raw scores and information obtained from the control group, or nonstuttering retardates, together with means and standard deviations for the variables indicated (IQ, anxiety scores, lie scores, and chronological age).

A comparison of manifest anxiety score means for the control group, in which the mean was 20.0, and thirty-nine male, institutionalized retardates tested by Warren and Collier, in which the mean was 19.5, indicates that anxiety score means for the two groups are practically identical. This is interpreted as one indication that this study's control group is representative of the retarded population in general, at least insofar as anxiety levels are concerned.

It should be noted that Warren and Collier found a "consistently higher" anxiety score mean for MR females with a mean score of 26.0 for 30 subjects than for their MR male group. This is in accordance with other studies involving the Children's Manifest Anxiety Scale (4, 5). The small number of female subjects included in this study precluded any significant conclusions being drawn in this area.

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TABLE I

DESCRIPTIVE INFORMATION AND ANXIETY SCORES FOR
 TWENTY NONSTUTTERING RETARDATES

Sex	IQ	A-Score	L-Score	CA
M	63	28	6	17
M	64	20	3	15
M	61	17	7	11
M	53	14	8	13
M	57	23	4	13
M	74	24	7	18
M	60	17	2	18
F	61	18	6	18
M	51	24	4	16
F	44	21	4	16
M	68	11	7	17
M	67	22	2	10
M	42	19	4	12
M	57	26	2	13
M	56	23	3	15
M	54	20	7	17
M	70	20	2	18
F	55	20	5	19
F	63	11	1	19
M	56	21	1	17
M	54	19	7	17
Mean	58.8	20.0	4.3	15.6
Standard Deviation	7.9	4.3	2.2	2.7

TABLE II
 DESCRIPTIVE INFORMATION AND ANXIETY SCORES FOR TWENTY
 MENTALLY RETARDED STUTTERERS

Sex	IQ	A-Score	L-Score	CA
M	70	38	5	18
M	69	13	6	17
M	68	27	9	12
M	44	36	7	12
M	59	20	5	12
M	78	27	4	17
M	63	30	5	17
F	67	30	4	21
M	50	27	5	16
F	37	33	4	16
M	66	31	6	16
M	64	20	5	9
M	42	30	2	10
M	55	31	5	13
M	54	39	5	15
M	52	31	3	18
M	52	30	5	22
F	52	30	4	19
F	66	24	1	20
M	54	19	7	17
Mean	58.1	28.3	4.9	15.9
Standard Deviation	10.4	6.4	1.7	3.5

there was a statistically significant difference between anxiety scores of MR stutterers and MR nonstutterers, and (b) whether there was a significant correlation between anxiety scores and any of the other intervening variables, excluding group membership (stutterers vs. nonstutterers).

It was found that the mean anxiety scores for stutterers and nonstutterers were significantly different at the .001 level of confidence ($F = 21.44$ with $df = 1/34$). As indicated in tables I and II, the mean anxiety score for nonstutterers was 20.0 and for stutterers it was 28.3.

An intercorrelation matrix for the combined stuttering and nonstuttering groups was included as an integral part of the MVAR program (Table III). It is evident from an examination of this table that the correlation between anxiety score and group membership (stutterers vs. nonstutterers) is the only correlation involving anxiety score which is statistically significant ($r = .61$, with $df = 38$).

Examination of correlations between the other variables (excluding anxiety score) reveals none of statistical significance with the exception of that between chronological age and sex. If the correlation between chronological age and sex were actually reliable, a significant correlation between these variables would simply indicate that the females chosen for this study were, on the average, older than the males.

Table IV and Table V present the results from a further attempt at evaluating the relationship between anxiety scores and the other variables involved. In these two instances, the stuttering group and the nonstuttering group are treated separately. An intercorrelation matrix for the mentally retarded nonstuttering control group is presented in Table IV. An r of .42 is required for any of these correlations to be significant at the .05 level of confidence, and none of the correlations between anxiety score and the other four variables meet this requirement.

TABLE III

INTERCORRELATION MATRIX FOR COMBINED GROUPS OF MENTALLY RETARDED STUTTERERS AND NONSTUTTERERS

Variable	IQ	A-Score	L-Score	CA	Stutterers vs. Nonstutterers
Sex	.21	.28	.06	.06	-.45*
IQ	.16	.05	.23	-.45*	0
A-Score		-.20	.07	.21	.04
L-Score			.01	.04	-.61**
CA				-.14	-.15
					-.04

* $P < .05$ with $df = 18$.

* $P < .05$.

** $P < .01$ with $df = 18$.

TABLE V

INTERCORRELATION MATRIX FOR TWENTY MENTALLY RETARDED STUTTERERS

Variable	IQ	A-Score	L-Score	CA
Sex	.13	-.07	.47*	-.45*
		-.31	.14	.20
			-.10	.10
				-.27

* $P < .05$ with $df = 18$.

Table V (p. 23) presents an intercorrelation matrix for the experiment. Again, an r of .42 is significant at the .05 level of confidence, and none of the correlations between A-scores and the other variables meet this standard.

TABLE IV
INTERCORRELATION MATRIX FOR TWENTY MENTALLY
RETARDED NONSTUTTERERS

Variable	IQ	A-Score	L-Score	CA
Sex	.21	.28	.06	-.45*
IQ		-.06	.02	.23
A-Score			-.13	-.15
L-Score				-.03

* $P < .05$ with $df = 18$.

In conclusion, it is felt that the primary inferences which may be drawn from the information presented in this chapter are (a) that retarded stutterers demonstrated a significantly higher level of manifest anxiety, as a group, than retarded nonstutterers, as indicated

TABLE V
INTERCORRELATION MATRIX FOR TWENTY MENTALLY
RETARDED STUTTERERS

Variable	IQ	A-Score	L-Score	CA
Sex	.13	-.07	.47*	-.45*
		-.31	.14	.20
			-.10	.10
				-.27

* $P < .05$ with $df = 18$.

Table V (p. 25) presents an intercorrelation matrix for the experimental group of twenty mentally retarded stutterers. Again, an r of .42 is required for significance at the .05 level of confidence, and none of the correlations between A-scores and the other variables meet this standard.

It is interesting to note that, in Table V, the r for sex and lie score is .47 ($P < .05$). If this correlation were actually reliable, then the males had a significantly higher lie score than the females. However, since subject selection resulted in 16 males and only four females, the observed significant correlation may be statistically artifactual.

In conclusion, it is felt that the primary inferences which may be drawn from the information presented in this chapter are (a) that retarded stutterers demonstrated a significantly higher level of manifest anxiety, as a group, than retarded nonstutterers, as indicated by F -test results, and (b) the correlation between manifest anxiety and group membership (stutterers vs. nonstutterers) demonstrates a strong relationship between these variables, $r = .61$ ($P < .001$).

Interesting factor which came to light relatively early in the study was the surprising scarcity of what the examiner considered stutterers among the retarded groups concerned since, according to Schlanger (25), the retarded population is supposed to contain a high incidence of stutterers. In actuality, the incidence of stuttering among the retarded population which was encountered in this study was not far different from the incidence reported for a nonretarded population. A suspected reason for the greater incidence of stuttering indicated by Schlanger is the fact that, in classifying a subject as a stutterer or nonstutterer, he made use of a dichotomous classification system involving the concept of "primary" and "secondary" stuttering, according to which a "primary" stutterer would be a person who is unaware of, and unconcerned about, his nonfluencies. As indicated by Robinson (23, p. 44), there is considerable controversy concerning the validity

of this concept, since many speech pathologists feel that an element of speaker-awareness tinged by anxiety is necessary for an individual to be accurately labelled a stutterer. This is one of the criteria considered in this study in CHAPTER V whether or not a subject belonged in the experimental group.

SUMMARY AND CONCLUSIONS

II. CONCLUSIONS

I. SUMMARY

Wischner (36, p. 151) asks the question, "Is anxiety in-stuttering? Twenty institutionalized mentally retarded stutterers and twenty institutionalized nonstuttering retardates, matched as closely as possible in terms of sex, measured IQ, and chronological age, were administered the Childrens Manifest Anxiety Scale. A higher statistical analysis of the results indicates that (a) the stutterers, as a group, scored significantly higher, anxiety-wise, than their nonstuttering counterparts, and (b) the aforementioned intervening variables had no statistically significant affect on anxiety scores for either group.

One interesting factor which came to light relatively early in the study was the surprising scarcity of what the examiner considered stutterers among the retarded groups concerned since, according to Schlanger (25), the retarded population is supposed to contain a high incidence of stutterers. In actuality, the incidence of stuttering among the retarded population which was encountered in this study was not far different from the incidence reported for a nonretarded population. A suspected reason for the greater incidence of stuttering indicated by Schlanger is the fact that, in classifying a subject as a stutterer or nonstutterer, he made use of a dichotomous classification system involving the concept of "primary" and "secondary" stuttering, according to which a "primary" stutterer would be a person who is unaware of, and unconcerned about, his nonfluencies. As indicated by Robinson (23, p. 44), there is considerable controversy concerning the validity

of this concept, since many speech pathologists feel that an element of speaker-awareness tinged by anxiety is necessary for an individual to be accurately labelled a stutterer. This is one of the criteria considered in this study in determining whether or not a subject belonged in the experimental group.

III. CONCLUSIONS

Wischner (36, p. 151) asks the question, "Is anxiety in stuttering unique or does it bear a relationship to anxiety as it has been studied in other experimental contexts and to other behavior assumed to be driven by anxiety motivation?" The fact that, in this study, stutterers indicated a higher anxiety level than nonstutterers when administered an anxiety scale not specifically related to stuttering or speech per se, seems to indicate the strong possibility of a relationship between stuttering anxiety and anxiety as described in other contexts. It is most interesting to note, in light of the obtained results, that none of the anxiety items in the Children's Manifest Anxiety Scale pertain either to stuttering, specifically, or to speech handicaps in general.

Viewing the experimental results in another light, this study lends support to the results obtained by Warren and Collier (32), Malpass *et al* (18), and others, indicating that retardates, as a group, present a significantly higher anxiety level, as measured by the CMAS, than nonretarded subjects. Also, considering the facts that (a) retardates in general indicate a higher anxiety level in an experimental situation than nonretarded subjects, and (b) that stuttering retardates indicate an even higher anxiety level than their nonstuttering retarded controls on an identical scale, it becomes easy to hypothesize a relationship between stuttering anxiety and what Wischner calls "other kinds of experimentally manipulated anxiety" (36, p. 151). It might well be concluded, therefore, that

anxiety experienced by stutterers about their disfluencies and about speech in general is basically no different from anxiety due to other factors, and therefore may be measured by any device, such as the Children's Manifest Anxiety Scale, considered adequate for the measurement of anxiety not specifically related to speech and stuttering.

III. RECOMMENDATIONS

There appear to be several possibilities for further research related to this study. For instance, difficulties experienced in this study in locating an adequate number of mentally retarded stutterers appear to point up a need for reexamination of previously reported incidence figures and the manner in which they were obtained. It is not surprising that incidence figures tend to differ when there appears to be no uniform definition of stuttering and no consistent method of differentiating the stutterer from the nonstutterer.

Another area for investigation which has already been indirectly pointed out might be a study of the possible relationship between sex differences and manifest anxiety scores among mentally retarded stutterers.

C.M.A.S.

Please answer ALL the following questions or No by circling the word Yes or the word No.

Year Month Day

Name _____ Sex _____ Date _____

Residence _____ Born _____

Telephone _____ Age _____

M.A. _____ I.Q. _____ Test Used _____ When _____

Verbal Score _____ Performance Score _____ Grade _____

Birthplace _____ Native Language _____

Classification _____ Diagnosis _____

Etiology _____

Occupation of father _____ of mother _____

Birthplace of father _____ of mother _____

Examiner _____ Place of Examination _____

Raw Score (A) _____

Raw Score (L) _____

11. I am secretly afraid of things.

12. I feel that others do things the way I do things.

13. I feel alone even when there are people around me.

14. I have trouble making up my mind.

15. I get nervous when things do not go the right way for me.

16. I worry most of the time.

17. I have a hard time concentrating.

18. I have a hard time making decisions.

19. I always have good manners.

20. My hands feel sweaty.

21. I have to go to the toilet more than most people.

22. Other children are happier than I.

23. I worry about what other people think about me.

24. I have trouble swallowing.

25. I have worried about things that did not really make any difference later.

26. My feelings get hurt easily.

27. I worry about doing the right things.

28. I worry about doing the right things.

29. I worry about doing the right things.

30. I worry about doing the right things.

31. I worry about doing the right things.

32. I worry about doing the right things.

33. I worry about doing the right things.

34. I worry about doing the right things.

Initial Diagnosis of Stuttering by _____

Stuttering Severity _____ Onset _____

Additional Handicaps _____

Est. of Social Adequacy _____

Previous Therapy _____ Type of Therapy _____

Previous History of Stuttering in Family _____

Remarks:

Please answer *ALL* the following items Yes or No by circling the word Yes or the word No.

-
- Yes No 1. It is hard for me to keep my mind on anything.
- Yes No 2. I get nervous when someone watches me.
- Yes No 3. I feel I have to be best in everything.
- Yes No 4. I blush easily.
- Yes No 5. I like everyone I know.
- Yes No 6. I notice my heart beats very fast sometimes.
- Yes No 7. At times I feel like shouting.
- Yes No 8. I wish I could be very far from here.
- Yes No 9. Others seem to do things easier than I can.
- Yes No 10. I would rather win than lose in a game.
- Yes No 11. I am secretly afraid of a lot of things.
- Yes No 12. I feel that others do not like the way I do things.
- Yes No 13. I feel alone even when there are people around me.
- Yes No 14. I have trouble making up my mind.
- Yes No 15. I get nervous when things do not go the right way for me.
- Yes No 16. I worry most of the time.
- Yes No 17. I am always kind.
- Yes No 18. I worry about what my parents will say to me.
- Yes No 19. Often I have trouble getting my breath.
- Yes No 20. I get angry easily.
- Yes No 21. I always have good manners.
- Yes No 22. My hands feel sweaty.
- Yes No 23. I have to go to the toilet more than most people.
- Yes No 24. Other children are happier than I.
- Yes No 25. I worry about what other people think about me.
- Yes No 26. I have trouble swallowing.
- Yes No 27. I have worried about things that did not really make any difference later.
- Yes No 28. My feelings get hurt easily.
- Yes No 29. I worry about doing the right things.

- Yes No 30. I am always good.
- Yes No 31. I worry about what is going to happen.
- Yes No 32. It is hard for me to go to sleep at night.
- Yes No 33. I worry about how well I am doing in school.
- Yes No 34. I am always nice to everyone.
- Yes No 35. My feelings get hurt easily when I am scolded.
- Yes No 36. I tell the truth every single time.
- Yes No 37. I often get lonesome when I am with people.
- Yes No 38. I feel someone will tell me I do things the wrong way.
- Yes No 39. I am afraid of the dark.
- Yes No 40. It is hard for me to keep my mind on my school work.
- Yes No 41. I never get angry.
- Yes No 42. Often I feel sick in my stomach.
- Yes No 43. I worry when I go to bed at night.
- Yes No 44. I often do things I wish I had never done.
- Yes No 45. I get headaches.
- Yes No 46. I often worry about what could happen to my parents.
- Yes No 47. I never say things I shouldn't.
- Yes No 48. I get tired easily.
- Yes No 49. It is good to get high grades in school.
- Yes No 50. I have bad dreams.
- Yes No 51. I am nervous.
- Yes No 52. I never lie.
- Yes No 53. I often worry about something bad happening to me.

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