Desensitization in Children and Adolescents: A Review

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ABSTRACT

Twenty-one controlled evaluations of the usefulness of desensitization techniques in children are reviewed. The studies were subdivided according to the nature of the target behavior into non-clinical, sub-clinical and clinical investigations. Only three studies worked with clinic populations and treatment effectiveness was best demonstrated in the least disturbed groups of patients. Major methodologic problems were a lack of adequate follow-up, poor choice of controls, ambiguously applied procedures and questionable dependent measures. It was concluded that these techniques have not yet been adequately examined. Apart from their therapeutic range and effectiveness, researchers should delineate any limiting (e.g., cognitive) factors which may be peculiar to this younger group.

Desensitization has become one of the most widely practiced therapeutic interventions for the elimination of anxiety responses. Although desensitization used to be synonymous with Wolpe’s (1969) technique of systematic desensitization by reciprocal inhibition (RI), recent years have seen the development of a number of gradual approach methods for the treatment of anxiety-related disorders. Included here are systematic desensitization using imaginal stimuli, in vivo desensitization, graded exposure, filmed modeling of graded exposure and modeling of systematic desensitization. For the purpose of the present review all will be subsumed under the heading of desensitization.

Several excellent reviews (Paul, 1969; Rachman, 1967; Rosenthal, 1976; Wolpe, Brady, Serber, Agras and Liberman, 1973) present convincing evidence from clinical reports and well controlled experimental studies attesting to the efficacy of these approaches with certain adult populations, an effec-
tiveness maintained over extended periods. To date, however, a similar review is not available covering children and adolescents. Furthermore, there is evidence to suggest that these younger populations may react quite differently to this form of treatment than do adults: for example, children younger than 12 or 13 years of age have a limited ability to use imagery (Elkind, 1966, Elkind, Medvene and Rockway, 1969) and children and younger adolescents have a limited attention span (Hohle, 1967). With adolescents in particular, the level of motivation and the reasons for seeking treatment often result in less practice than required. These factors may lead younger populations to react to the desensitization procedures in a unique fashion.

The purpose of this paper is to examine the effectiveness of desensitization and its components in the treatment of childhood problems. In order to accomplish this, a review of the published English language literature from January 1965 to June 1977 was undertaken. Only investigations which met certain criteria for controlled evaluations were included: i) a sufficient number of subjects were involved; 2) a clearly described control group was included; 3) the procedures under investigation were clear and 4) cause and effect statements could be made. The populations covered were children and adolescents up to and including 18 years of age.

While therapy reviews can be organized in various ways, and along numerous dimensions, the present studies have been grouped according to the phenomenology of the target behavior as it serves to illustrate the relationship between the various experiments and their clinical relevance.

NON-ClinICAL STUDIES

Non-clinical studies referred to in Table 1 were carried out with subjects (Ss) whose target behavior, for example, preschooler snake or dog fear, though potentially debilitating, are not considered phobic responses, are extremely common and would be expected to resolve spontaneously (Anthony, 1975; Berecz, 1968). The major goal of these studies was the delineation and development of the processes involved in desensitization and the identification of essential components. Large numbers of children in classrooms or summer camps were screened in order to identify a smaller number who had certain specific fears. These were rarely phobic in nature, in that the children were not immobilized or incapacitated to any significant degree and neither were they reported to display any obsessive qualities. Further selection of subjects was based on behavioral approach tests (BATS) that required children to approach the feared object while an experimenter objectively scored the degree of avoidance. One reason that this population was studied seemed to be that children were easily identified and rarely showed any other psychological disturbance. Albert Bandura and his colleagues (Bandura, 1969, Bandura, Grusec & Menlove, 1967; Bandura and Menlove, 1968) have been pioneers in the area of vicarious learning and the acquisition and reduction of problem behaviors. Their research provides a good example of work with non-clinical Ss. Bandura et al. (1967) studied nursery school children who allowed fearful and avoidant behaviors towards dogs. The children were classified as fearful based on the basis of a BCT. In a modeling-positive context condition (Mo+) groups of children observed a fearless peer model's approach responses while attending a jocose party (positive context). For a modeling only group (Mo), the same sequence of events was employed but without a party. The two control conditions were: (a) exposure-positive (Ex+) in which the dog was in the playpen while the children had a party, with no modeling and (b) a party-only control groups (CN). BATS were undertaken the day after treatment and one month later. The results indicated that both modeling conditions resulted in significant decreases in avoidance behavior, but that a positive context did not augment the degree of extinction. The two control groups did not show significant reductions in avoidance behaviors. Generalization was demonstrated to the extent that many desensitized children could complete the terminal task with an unfamiliar dog. This was a tightly designed study with well chosen control groups, ensuring maximal discrimination between treatment variables.

Bandura and Menlove (1968) followed this with a study of the fear reduction process under diverse group modeling conditions using a similar population and assessment procedure. Group treatment conditions were depicted on three minute films, two per day on four alternate days. In the single model condition (MoS) children observed a fearless 5 year-old display progressively bolder approach behavior towards a dog. In the multiple model group (MoM) subjects observed several different children of different ages interact with a variety of dogs. The control group (CN) viewed neutral films. BATS were performed the day after intervention and again one month later. No change was evident in the controls, however both modeling conditions showed significant increases in approach scores from the pre-test to post-test. For the MoM group there was a further significant increase between post-test and follow-up. Though both modeling groups effect significant reductions in avoidance behavior, only the MoM condition weakened fear to the extent that there was a demonstrable increase in the number of children who could undertake the terminal task on the BAT (i.e. remain alone in the room while confined with the dog in the playpen, and play with the dog). The authors concluded that multiple modeling provided a better learning experience with greater generalization and fearless approach responses. Again, design and control deployment was good. In both studies the assessor was blind to group assignment and had minimal information on the experiment.

Similar studies have been carried out with dog avoidance preschool boys (Hill, Liebert and Mott, 1968), snake avoidance children (Murphy and Bootzin, 1973; Kelly, 1976; Kornhaber and Schroeder, 1975; Ritter, 1968) and water avoidance children (Lewis, 1974).

The non-clinical studies can most usefully be conceptualized as "laboratory analogues" - tightly controlled models of intervention employing a marginally disabled population and relatively unhindered by intervening variables. As such, they provide a satisfactory vehicle for investigating the components of the desensitization process, but one far removed from the clinical area of implementation. In most instances, they were excellent studies in terms of design and execution and included the provision of blind raters. Virtually all studies in this category investigated various forms of modeling rather than a wider variety of desensitization procedures. The reason for this is not clear but it may be a function of the immaturity of the subjects. With two exceptions (Murphy and Bootzin, 1973; Kelly, 1976) the investigators utilized group treatment. Other interventions variations included the use of filmed models (Bandura and Menlove, 1968; Hill, Liebert and Mott, 1968) which seemed effective, and it appears that multiple models are superior to single models (Bandura and Menlove, 1968) and modeling with guided participation is superior to modeling alone (Ritter, 1968). Kornhaber and Schroeder (1975) suggest that as far as behavior change is concerned, the dimensions of initial fearfulness of models is unimportant but that peer models are more effective in reducing snake avoidance than adult models.

Control groups were generally well chosen in the non-clinical studies and only Ritter (1968) and Murphy and Bootzin (1973) employed a "no treatment" comparison, a feature which militates against the strength of their design. A pseudotreatment or attention control would have been more appropriate. A protracted follow-up evaluation would have been a valuable addition to all these studies and should have
been longer than the one month used by Bandura and his group in view of the likelihood that the target fears would disappear as part of normal maturation (Berez, 1968).

In summary then, these well designed investigations suggest that modeling (live or filmed) is a useful treatment, but the clinical applicability of these findings is hampered by the minor and transient nature of the target behaviors studied (Anthony, 1975; Berez, 1968; Marks and Gelder, 1966).

**SUB-CLINICAL STUDIES**

Though primarily focusing on symptom amelioration, these studies also provided a vehicle for investigating the components of the desensitization process. Subjects were selected from secondary school populations on the basis of school related anxieties (test and speech), often coincident with poor school performance. Though most Ss were solicited by the investigators, some had sought help from guidance counsellors and all experienced subjective anxiety. Various desensitization procedures were employed to diminish this anxiety (as rated by anxiety scales and physiologic measures) and improve grade point averages (GPA's).

Kondas (1967) selected children, 11-15 years of age, who displayed "stage-fright" (the authors' collective term subsuming both speech anxiety and test anxiety) on the basis of teachers' reports and a fear inventory. Four modalities were compared: (1) Rx, consisting of Luther's autogenic training (2) RI (Systematic desensitization by reciprocal inhibition with imagined stimuli) carried out in groups after several Rx sessions had been completed, (3) graded exposure (GE) just visualizing items used in the RI treatment, (4) CN. The fear inventory was administered and a palmar sweat reassessment conducted at the end of treatment. Five months later only the fear inventory (FSS) was re-administered. The results revealed that on the post-test both RI and Rx resulted in decreased fear inventory scores, but only the Rx subjects showed decreased perspiration. It is possible that the Rx finding was an artifact due to the relaxation being practiced in the classroom generalizing to the post-test situation. The five month follow-up showed a stable fear inventory (FSS) reduction in the RI group only. The demonstration of a persistent treatment effect strengthens this report but groups were very small (4-6) and differences not as marked as the authors suggest.

Laxer, Quarter, Kooman and Walker (1969) administered two anxiety scales, and children who scored high were randomly assigned to muscle relaxation (Rx), RI or CN groups. The only significant finding was that Rx resulted in a significant decrease on one of the anxiety scales. GPA's and the other anxiety measure did not show appreciable improvement in any of these groups. To further elucidate the active components of desensitization and to clarify these findings Laxer and Walker (1970) assigned groups of subjects to one of six conditions: (1) Rx, (2) RI, (3) a group that wrote numerous simulated school tests (St), (4) RxSt (relaxation undertaken for twenty minutes then simulated school tests for twenty minutes, no graduated exposure nor assessment of their level), (5) placebo control (CP), or (6) CN. Pre- and post-treatment anxiety scores differed significantly following RI and Rx. Educational tests and GPA's did not co-vary with the anxiety measures but the authors contend that the measures may have been taken too soon for changes to have been evident—an unfounded conclusion best examined by a follow-up retest.

To evaluate whether vicarious desensitization might be comparable to direct desensitization, Mann and Rosenthal (1969) assigned counselor referred test anxious grade 7 students to one of six groups: (1) individual and direct RI, (2) individual vicarious desensitization (RIV), (3) group direct desensitization (RIG), (4) vicarious group desensitization, observing direct desensitization of a group (RIGV), (5) vicarious group desensitization, observing direct desensitization

**TABLE 1**

<table>
<thead>
<tr>
<th>Author</th>
<th>Subjects Age</th>
<th>Target Behavior</th>
<th>Dependent Measures</th>
<th>Interventions and Results</th>
<th>Follow-up Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandura et al. 1967</td>
<td>3-5 N=49</td>
<td>Dog avoidance</td>
<td>BAT Mo</td>
<td>+ +</td>
<td>Mo Ex</td>
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<td>Bandura and Miser 1967</td>
<td>3-5 N=49</td>
<td>Dog avoidance</td>
<td>BAT Mo</td>
<td>MoM</td>
<td>MoS</td>
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<tr>
<td>Hill et al. 1968</td>
<td>3-5 N=18</td>
<td>Dog avoidance</td>
<td>BAT Mo</td>
<td>MoM</td>
<td>CN</td>
</tr>
<tr>
<td>Peter 1968</td>
<td>5-11 N=44</td>
<td>Snake avoidance</td>
<td>BAT Mo</td>
<td>MoP</td>
<td>Mo</td>
</tr>
<tr>
<td>Murphy and Button 1973</td>
<td>6-8 N=67</td>
<td>Snake avoidance</td>
<td>BAT Mo</td>
<td>MoP</td>
<td>CN</td>
</tr>
<tr>
<td>Lewis 1973</td>
<td>5-12 N=43</td>
<td>Water avoidance</td>
<td>BAT Mo</td>
<td>MoP</td>
<td>P</td>
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<tr>
<td>Schaefer 1975</td>
<td>7-9 N=43</td>
<td>Snake avoidance</td>
<td>BAT Mo</td>
<td>MoAF</td>
<td>MoAF</td>
</tr>
<tr>
<td>Kelly 1978</td>
<td>4-5 N=45</td>
<td>Dark avoidance</td>
<td>BAT Mo</td>
<td>Mo</td>
<td>CN</td>
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**Sub-Clinical Studies**

<table>
<thead>
<tr>
<th>Author</th>
<th>Subjects Age</th>
<th>Target Behavior</th>
<th>Dependent Measures</th>
<th>Interventions and Results</th>
<th>Follow-up Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrews 1971</td>
<td>15-18 N=49</td>
<td>Test anxiety</td>
<td>Anxious inventory</td>
<td>RI</td>
<td>Co</td>
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<tr>
<td>Beratelli 1973</td>
<td>10-13 N=67</td>
<td>Test anxiety</td>
<td>Galvanic skin response</td>
<td>RI</td>
<td>RLI</td>
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<tr>
<td>Derfenebach 1974</td>
<td>11-13 N=21</td>
<td>Test anxiety</td>
<td>Grade point average</td>
<td>RI</td>
<td>CN</td>
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<td>Johnson et al. 1974</td>
<td>13-15 N=24</td>
<td>Speech anxiety</td>
<td>Anxious inventory</td>
<td>RI</td>
<td>SP</td>
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<tr>
<td>Kondas 1976</td>
<td>11-15 N=23</td>
<td>Test anxiety</td>
<td>Fear inventory</td>
<td>Rx</td>
<td>GE</td>
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<td>14-18 N=99</td>
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<td>Anxious inventory</td>
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<td>12-15 N=60</td>
<td>Test anxiety</td>
<td>Anxious inventory</td>
<td>MoM</td>
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**Clinical Studies**

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<th>Author</th>
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<th>Interventions and Results</th>
<th>Follow-up Evaluation</th>
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<td>Dog phobia</td>
<td>RFLS</td>
<td>Parent rating</td>
<td>GE</td>
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<td>6-11 N=67</td>
<td>Specific phobias</td>
<td>Clinical rating</td>
<td>PI</td>
<td>PT</td>
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<td>Hampson et al. 1973</td>
<td>6-12 N=62</td>
<td>Fear inventory</td>
<td>Parent rating</td>
<td>+</td>
<td>+</td>
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</table>

* + = significant improvement; - = significant change; MoAF = fearful adult model; MoCF = fearful child model; MoAF = non-fearful adult model; MoCF = non-fearful child model; GER = graded exposure with contingencies; GENR = graded exposure with non-contingencies; P = placebo.
of a model (RIGV\textsuperscript{2}), or (6) CN. The two authors (opposite sexed and widely disparate in age) treated half each group and the dependent measures used were a test anxiety scale and the Gates McGinitie Reading test. Results showed that the major treatment variations (individual vs. group, vicarious vs. direct) had equivalent outcomes. In both anxiety and reading the experimental groups improved compared to the CN. The therapist variables did not alter the results.

As vicarious desensitization was evidently an effective intervention, Mann (1972) determined to further explore the active components. Selecting test anxious grade 7 and 8 subjects by the previously described method (Mann and Rosenthal, 1969) subjects were assigned to the following groups: (1) imitation of modeled responses in which the author was using RI with another test anxious (Molm), (2) observation without imitation (Mo), (3) observation of model during the presentation and visualization of the hierarchy but not relaxation (MoV), or (4) CN. The Gates McGinitie Reading Test and a test anxiety scale were administered before treatment, immediately afterwards and one month later. Improvement on both measures were noted following all three treatment variations with none more potent than the others. The benefit was maintained over the next month and treated controls replicated these results. The finding of treatment efficacy equivalence is most intriguing in view of the variety of modalities employed. While the improvement may represent a treatment effect, the results of the first experiment should have alerted the author to the necessity of an attention control and for a pseudo-treatment control. The references to the relative irrelevance of these options do not satisfactorily address this alternative.

In an effort to improve school performance by diminishing anxiety, Andrews (1971) selected an above-average IQ group of underachieving, anxious students and randomly assigned them to (1) CN, (2) client-centered counselling (Co), (3) individualized systematic desensitization reinforced by time-in-therapy contingent on classroom attendance and completed homework (RI). Significant post-treatment reduction in the RI group was not paralleled by any GPA improvement. The addition of an operant component confounds the results and makes it impossible to evaluate the importance of the systematic desensitization per se in the anxiety reduction. In the absence of an adequate follow-up, the intimation that achievement improvement could be forthcoming is unwarranted. It was demonstrated that school counsellors can be trained to use this technique (RI) to reduce at least some components of anxiety.

Johnson, Tyler, Thompson and Jones (1971) examined the comparative usefulness and feasibility of group desensitization by RI and speech practice (SP), selected students who scored high on a speech anxiety test. Both groups received considerable encouragement from the therapist. The SP group procedure was the same for all sessions — each child was required to give a short talk to the other children during each meeting. The presentation was taped and listened to by the subject, then the presentation was repeated. Both groups showed a significant drop in anxiety as measured by the speech anxiety questionnaire one week after treatment. A CN group showed no such improvement. The similar efficacy of SP and RI may suggest that "demand characteristics" and "expectancy effects" were crucial. The lack of an attention control group precludes further evaluation.

Using galvanic skin response as a measure of anxiety to a test-like situation Barabasz (1973) separated students into high (Hi) and low (Lo) test anxious groups. Each group was further divided into an experimental (RI) and CN subgroups, resulting in four conditions: RI resulted in improved post-treatment intelligence test scores and lowered test anxiety with the high anxiety children while the other three groups did not change significantly. The author is appropriately restrained in restricting his concluding remarks to the substance of the experiment.

Deffenbacher and Kemper (1974) treated highly test anxious children with RI using a common test anxiety hierarchy. Experimental subjects improved their grade point average (GPA’s) significantly from term one to term two, whereas there was not a similar change in a similarly selected CN group. In their discussion, the authors comment on the apparent effectiveness of group RI, the ease of training counselors and the paucity of essential equipment.

In all of these studies, dependent measures of anxiety showed improvement in treated compared with non-treated populations; however, results were by no means consistent and reports (Laxer, Quater, Kooman and Walker, 1969; Laxer and Walker, 1970) suggest that various measures of anxiety were differentially affected, with manifest anxiety measures, usually self-reported showing the greatest change (Andrews, 1971; Johnson, Tyler, Thompson and Jones, 1971; Laxer et al., 1969) and physiologic measures somewhat less (Barabasz, 1973; Kondas, 1967). Tests of school performance documented improved marks in three of six studies (Deffenbacher, 1974; Mann and Rosenthal, 1969; Mann, 1972).

Since most papers were predicated on the assumption that anxiety contributes to poor school performance, future researchers would be well advised to examine that proposition in the light of the above reported results which, if taken at face value, would indicate that at best, anxiety is a contributing factor of uncertain significance.

Along the treatment variable dimension, both group and individual procedures seemed effective in relieving anxiety (Deffenbacher, 1974; Johnson et al., 1961) but only Mann and Rosenthal (1969) compared both modalities within their experiment, noting equal effectiveness. The same investigators found vicarious procedures to be equal to those performed directly — a variation not examined by others — and that age and sex differences between therapists apparently did not impair their effectiveness. A variable preferred to but not evaluated (Andrews, 1971; Johnson et al., 1971) is positive reinforcement coupled with anxiety relief procedures.

An area of significant neglect is the choice of control groups. In all instances, waiting list or non-treated controls were employed. In view of the reported anxiety relief under a variety of treatment conditions (e.g. RI, GE, Rx, RIV, RIGV, RIGV\textsuperscript{2}) one must seriously question whether this constitutes an adequate control. In spite of claims to the contrary (Johnson et al., 1971; Mann and Rosenthal, 1969) it is suggested that attention controls and/or pseudo-treatment controls are still to be preferred. Only one study employed a follow-up evaluation (Kondas, 1967) and blind evaluations do not seem to have been used.

To summarize, at a clinical level, treatment efficacy has not been conclusively demonstrated nor has the permanence of treatment effects ever been adequately evaluated. Of treatment variables, there is suggestive evidence that desensitization can be presented in a group setting and effected through modeling.

CLINICAL STUDIES

The children involved in these studies were seen in clinics and hospitals and while the primary goal was symptom alleviation, treatment variables were also examined. Of course, these populations are most difficult to study because their psychological problems often require variations in treatment technique dictated by patient needs but frequently at odds with the experimental procedures. Other problems such as lack of suitable controls, difficulty in delineating appropriate outcome measures and high attrition rates are also burdensome.

To determine the specificity of the use of RI in asthma, Moore (1965) reports a study with six adults and six children (ages not specified). The subjects had histories of severe asthma attacks. Three treatment procedures were compared: (1) relaxation only (Rx), (2) relaxation plus direct suggestion
(RxS), and (3) systematic desensitization by reciprocal inhibition (RI). Relaxation training was based on a combination of Shultz’s autogenic training and Jacobson’s progressive training and patients were encouraged to practice at home for 5 minutes a day. For the RxS treatment relaxation was paired with strongly reiterated statements that the patient would improve and also become more relaxed. RI involved three sequentially presented thematic hierarchies covering (1) the attack itself, (2) anxiety eliciting stimuli, and (3) presumed traumatic events associated with the onset of asthma. The design of Moore’s study is rather unusual, in that the treatment procedures were conducted in a balanced incomplete block design with one adult and one child in each block receiving eight half-hour weekly sessions of each of two treatments in the following combinations, Rx-RxS, Rx-Ri, Ri-RxS, RxS-Rx, Ri-Rx, RxS-Rx. The design allows for cause and effect statements without a control group and allows comparisons both within and between subjects. The frequency of problems days reported by the subjects declined with all treatments and intergroup differences were not significant. However, RI resulted in significantly greater maximum peak flow than the other two procedures. Unfortunately, for the purpose of this review, the child group was not separated from the adult. The sample is small but the authors’ conclusions seem well founded.

Opler and Terwilliger (1970) report an investigation that uses a rather unorthodox desensitization procedure and the study is somewhat reluctantly included. Thirty emotionally disturbed, neurologically impaired children were selected to participate. They were drawn from a medical clinic population of 150 children diagnosed as having minimal brain dysfunction with a severe monophonic disorder to either the use of a public bus or live dogs. Fifteen children were placed in the treatment condition (GE) and fifteen CN subjects were matched for age, sex, intelligence and phobic diagnosis. Each child was seen individually for a weekly 1-hour session over a 10 week period. The GE procedure consisted of the subjects being initially exposed to pictures or models of the feared stimulus. Slowly over the sessions children were exposed to the real phobic stimulus. Throughout the sessions the therapists continuously verbally supported approaches to the feared stimuli, with the therapist acting as a buffer. Towards the end of treatment the subjects were offered tangible rewards such as candies, toys and books for completing contact with the phobic stimuli. The method used here differs from the traditional reciprocal inhibition method in that (1) there is no training in relaxation in this study, (2) the anxiety-producing hierarchy was arbitrarily set up by the therapist not the patient, (3) the reward for approach behavior was regularly and consciously used, and (4) the subjects were not required to verbally indicate the experience of lowered anxiety. The treated Ss significantly increased their ability to interact with the previously feared objects, based upon a parents’ rating scale filled out prior to and upon completion of treatment. The control group showed no significant changes. Furthermore, the subjects’ intellectual ability (IQs ranged from 60 to 146) did not interfere with therapeutic success. In replying to the critique of Begelman and Hersen (1970) the authors justified their unorthodox methodology by reflecting on its apparent effectiveness (Terwilliger and Opler, 1971). Suffice to say that there were too many intervening variables to assess the role of desensitization in the therapeutic result.

The reports by Miller, Barret, Hampe and Noble (1972) and Hampe, Noble, Miller and Barrett (1973) will be presented together. The first paper (Miller et al., 1972) describes a study that compares systematic desensitization by reciprocal inhibition (RI), psychotherapy (PT) and waiting list control (CN) while Hampe et al. (1973) presents a one and two year follow-up of the participating children. Miller et al. solicited as subjects 67 children who showed serious phobias towards school (68%), sleeping alone (56%), the dark (6%), separation (3%), dogs (3%), storms (2%) etc. Some of the children were, through random selection, placed in the CN group and participated only in assessment sessions. Traditional RI was modified by allowing the therapists and parents to use rewards, and assertive training was also used for certain interviews which focused on the child’s inner experiences, hopes, fears, aggressive and sexual concerns and dependency needs. Twenty-four one hour sessions (three times per week for eight weeks) constituted the treatment time and outcome was assessed 8 and 14 weeks after treatment. Several outcome measures were used in this study: (1) a severity score, determined by the clinician, based on the intensity of the phobia and the degree to which the fear affected the child’s life sphere, (2) a well known problem behavior checklist for children, filled out by parents, (3) a fear inventory for children, also filled out by parents, and (4) a total disability score based upon the aforementioned rating scales. An independent evaluation was introduced for a reliability check of the clinicians involved and revealed that there was no significant difference in clinical ratings between the independent rater and the clinicians in the study. The evaluation by therapists at the end of treatment and fourteen weeks later revealed that all groups (RI, PT, CN) improved, but none were clearly superior. The parent rating scales showed that the two treatment groups were significantly superior to the CN, but did not differ from each other. The fear scale and the total disability scale, both of which were based on parent’s perception, showed similar results. In addition, all therapists seemed equally effective. There may have been an age effect as indicated by the younger children’s better response to RI and PT. Hampe in evaluating these children one and two years later reported that, on the clinical ratings, there were still no differences between experimental groups. The previously significant differences (based upon the parents ratings) had disappeared at both follow-ups. However, two significant findings did remain — (1) the younger children seemed to maintain their gains over the two years and (2) patients that were successful in therapy tended to remain successful over the follow-up period, while failures showed dramatic decreases in symptoms over the first year with continued improvement in the second year. These results are striking and, since the study is well conducted, justified from the data. The population was quite heterogeneous and a breakdown of the results by diagnosis at least school phobia vs. specific phobia would have been revealing, particularly since school phobia has been considered to have a different etiology to specific phobias (Bercel, 1968).

There is a striking lack of work in the clinical area. The two adequate studies (Hampe, Noble, Miller and Barrett, 1973; Moore, 1965) treated unrelated clinical conditions and employed different methodology, consequently the reviewers’ remarks will be restricted to noting suggestive evidence of clinical effectiveness of systematic desensitization with phobic and asthmatic children. The work of Hampe and his group sounds a caution to others that these fears tend to be time-limited and that treatment effects may not be dramatic. Whether differences in therapeutic technique will outweigh the general effect of therapist and/or hospital attention remains an open question.

**OVERVIEW**

**Treatment**

A wide range of procedural variations have been employed with at least transient success. Reciprocal inhibition procedures have been found somewhat effective with older children (Barabasz, 1973; Deffenbacher, 1974; Kondas, 1967) and there is evidence that RI experienced vicariously through films or direct observation is as effective as experiencing it in vivo (Mann and Rosenthal, 1969; Mann, 1972). Furthermore, several studies have suggested that ex-
periencing RI with a common hierarchy can be of considerable benefit to a homogeneous group (Barabasz, 1973; Kondas, 1967) and is no less effective than individually tailored RI (Mann, 1972). Modeling of approach behaviors to feared stimuli using single or multiple live or filmed models has been beneficial with children as young as 3 years (Bandura, Grusec and Menlove, 1967; Bandura and Menlove, 1968) and when paired with guided participation, even more successful (Murphy and Bootzin, 1973). Desensitization was useful when effected rapidly (Murphy and Bootzin, 1973) or over a more protracted period (Johnson et al., 1971). In spite of this, few of these variations could be regarded as of proven worth, and even then only under rather circumscribed clinical conditions. The group modeling techniques referred to above seem of value in the relatively benign specific fears of childhood (Bandura et al., 1967; Bandura and Menlove, 1968; Hill, 1968). Within the "sub-clinical studies" group systematic desensitization seemed an effective modifier of some school related anxieties (Deffenbacher, 1974; Johnson, et al., 1971; Mann & Rosenthal, 1969).

Methodologic Consideration

Even the few treatment findings must be viewed with restraint as many of the studies show serious methodological flaws. The most obvious is the infrequency of follow-up evaluations. In that the purpose of the various interventions was the elimination of avoidance behavior, it is most remarkable that the permanence of any such treatment effect was not adequately tested and it is perhaps salutory that it was in the most thorough investigation with the longest follow-up that minimal treatment effect was found (Hampe et al., 1973; Miller et al., 1972).

The shortcomings of the control populations have been referred to previously. Suffice to say that attention controls or pseudotreatment controls provide a better comparison group, particularly when the therapeutic modality is an interpersonal interaction — just as a placebo medication provides a better comparison with an active compound than a no-treatment control. Problems with dependent measures were particularly evident in the "sub-clinical studies" and independent assessments were conspicuously absent. Therapist variables have been sorely neglected in this research. Although several studies used more than one therapist (Andrews, 1971; Deffenbacher, 1974; Laxer and Walker, 1970) only two analyzed their data taking this into account (Mann and Rosenthal, 1969; Miller et al., 1972). In neither of these investigations was there a significant therapist effect on the desensitization process. Sex and social class variables were not sufficiently examined to permit any definite conclusions.

The duration of treatment seemed to vary as a function of the severity of the disorder under treatment. In the "non-clinical studies", the modeling procedures were administered over a few consecutive days (Murphy & Bootzin, 1973). The desensitization procedures in the "sub-clinical studies" were generally applied at weekly intervals for five (Deffenbacher, 1974) to ten weeks (Kondas, 1967) and in the "clinical studies" for eight (Miller et al., 1972; Moore, 1965) to ten weeks.

Developmental Limitations

None of the studies refer directly to factors limiting the effectiveness of the various treatment modalities nor did their results give direct evidence of the children being too unsophisticated to participate in the experiments. Indirect reference to these considerations may perhaps be found in the younger age of those subjected to group behavior modeling compared with those in whom individual reciprocal inhibition was employed and the increase in spacing of treatments and duration with increasing age referred to above. It is clear that the lower age limits of the techniques have not been adequately explored. Several studies have used modeling in 3 year olds (Bandura et al., 1967; Bandura and Menlove, 1968) and Miller et al., (1972) has used RI in 6-7 year old children. From the description of methodology it is clear that desensitization practices have not adhered to the format generally used with adults. For example, encouragement has been used, either systematically (Andrews, 1971; Bandura et al., 1967) or when necessitated by subject variables (Miller et al., 1972; Obler, 1970).

Efficacy

The question of problem behaviors of childhood and adolescence that are reactive to desensitization is most difficult to determine from the available studies. Within the non-clinical group virtually all the desensitization procedures were successful. The closer the subjects' behavior approached the unequivocally pathologic realm, the more resistant to specific intervention it appears to become. In the sub-clinical studies desensitization was able to alleviate test and speech anxiety and increase performance in intelligence tests, GPA's or reading tests in most investigations, but was not successful in three others (Andrews, 1971; Laxer et al., 1969; Laxer and Walker, 1970). Within the clinical group the findings became less convincing — in two out of the three studies desensitization was shown to be more effective than no treatment controls in the short term but in the excellent studies by Miller (1972) and Hampe (1973) the treatments offered little advantage over the control waiting period by the end of the second year.

Recommendations

Studies in adults have convincingly shown that pathological behavior is not immutable and that it can be modified by various desensitization procedures. However, the extent to which these techniques can alter pathological behavior in children is still questionable. Future work should address itself to three problem areas:

1. the possible existence of limiting factors such as IQ, verbal or cognitive skills and social characteristics,
2. the utilization of desensitization procedures in clinic populations, and
3. the elucidation of the active components within the various procedures.

Finally, methodological concerns suggest that particular care should be shown to the provision of attention, pseudotreatment or alternative treatment controls and adequate follow-up evaluations to ensure the validity of the results.

REFERENCES


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