

Psychological Effects of a Special Summer Camp on Juvenile Diabetics

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SUMMARY

A group of children with diabetes mellitus were evaluated for self-esteem and manifest anxiety before and after attending a special summer camp. Both males and females showed significant increases in their self-esteem and decreases in manifest anxiety. In both areas, the girls showed a greater improvement than the boys but this was thought to be due partially to the lower initial self-esteem in the females.

A comparison was made between these children and a matched group of diabetic children who did not attend camp. In this group, there was also an improvement in both variables on retesting. The improvements for the camp group were always greater than for the controls, but only in the case of female self-esteem was the difference statistically significant. *DIABETES* 22:275-78, April, 1973.

Since the establishment of the first camp for juvenile diabetics by Wendt in 1925,¹ much has been written about the psychological value of such camps.²⁻¹⁸ Generally, it has been felt that these camps are of value both to the child and his parents. For the most part, however, these observations are anecdotal and are based on subjective observation of the campers.

French and Sanders¹² sent questionnaires to parents after a camp session and reported that the parents "thought that personality development and adjustment were major benefits" of the camp. Offutt¹⁴ administered the California Test of Personality to diabetic campers and concluded that there was "a tendency for a high sense of personal worth . . . particularly for all the girls." This test was administered during the camp session and the study design did not permit the conclusion that the camp program was responsible for the high self-esteem.

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Other workers¹⁵⁻¹⁸ have reported the results of psychological tests but none of these have attempted to demonstrate changes due to the camp. Thus, objective, before-and-after studies to evaluate the psychological impact of diabetic camps are not available.

The present study was undertaken to evaluate the effect of a special diabetic camp on the child with respect to two psychological variables. The study was based on the hypothesis that the camping experience should raise the child's self-esteem and decrease the manifest anxiety.

MATERIALS AND METHODS

Subjects. The experimental (camping) group consisted of juvenile diabetics who attended the Texas Lions Camp for Diabetic Children for the first time during a three-week session in the summer of 1971. Of the 110 children (seventy girls and forty boys) who attended the camp, sixty-eight had never been to diabetic camp. Each of these sixty-eight families were contacted by a letter in which the reason for the study was explained, i.e. evaluation of the effectiveness of the camp, and participation was requested. Sixty-two families agreed to participate in the study, but lack of time prior to camp permitted the testing of only forty-two. There did not appear to be any difference between the six families who failed to return the authorization card and the sixty-two who agreed to participate. The forty-two children who were pretested differed from the other twenty only in the fact that the former were accepted to the camp earlier (thus allowing more time for the pretest to be administered) and their residence was closer to the camp, e.g. all children who resided over 300 miles from the camp were arbitrarily excluded.

Of the forty-two children who took the pretest, nine were subsequently dropped from the study for various reasons (one was felt to be too young; one was found not to be diabetic while at camp; three refused to take the retest; two had personal or family tragedies shortly after the camp. The only two blacks were deleted to make the group more homogeneous). Thus, test-retest

data were obtained on thirty-three children (twenty-two females and eleven males). The females had a mean age of 11.2 years (median of 12.3 years and a range of seven to fourteen years) and had a mean duration of diabetes of 2.2 years (median of 2.1 years). The males had a mean age of 9.4 years (median of 10.2 and a range of six to twelve years) and a mean duration of diabetes of 3.4 years (median of 3.5 years).

The control (noncamping) group consisted of juvenile diabetics (whose names were obtained from a variety of physician sources) who had never attended a diabetic camp and had not applied for a camping experience during the summer of 1971. These children were matched as closely as possible to the camping group with respect to age, sex, race, socioeconomic status and duration of diabetes. Initial tests were given to thirty-one, but five were subsequently rejected from the final analysis (two refused to take the retest; two others experienced personal or family problems unrelated to diabetes; and one black was dropped to make the group homogeneous).

Thus, test-retest data were obtained on twenty-six control children (fifteen females and eleven males). The females had a mean age of 11.4 years (median of 11.0 years and a range of seven to fifteen years) and a mean duration of diabetes of 4.1 years (median of 2.5 years). The males had a mean age of 12.2 years (median of 13.3 years and a range of nine to fifteen years) with a mean duration of diabetes of 5.3 years (median of 4.0 years).

Psychological Tests. All children were given the Coopersmith Test of Self-Esteem¹⁹ and the Children's Manifest Anxiety Scale.²⁰ These are both objective, self-report tests. The Coopersmith Test has a score range from 0 to 100; the higher the score, the greater the self-esteem. The Manifest Anxiety Scale has a potential range of 0 to 42; the higher the score, the greater the manifest anxiety level.

The Coopersmith Test potentially suffers from the so-called "ceiling effect"—a person scoring high initially would be mathematically and artificially limited in the degree of improvement possible. To compensate for this, the two subjects in each group who scored 92 or above on the initial test were arbitrarily eliminated from statistical analysis. A similar procedure was followed on those scores of five and below on the Children's Manifest Anxiety Scale.

Test Procedure. The tests were administered at the home of the subject in all cases. One of the authors (R.M.) was in attendance at all of the pretests and at all

but six of the retests. In the latter instances, the questionnaires were mailed to the family after telephone communication. This was thought not to affect the results since the tests did not have a time limit, the children had already learned the technic of answering the questions, and the testing locale (home) remained the same. In each of the testing situations, the procedure was carefully explained, and it was emphasized that there were no right or wrong answers. The questions were read to younger children in both groups and their responses recorded.

The initial testing on the camping group was done from one to eight weeks before the camp started. Post-camp tests were administered from four to fifteen weeks after camp. The median time period between the first and second testing for the camping group was eighty-six days, compared to eighty-two days for the control group. The means were 87.7 days and 88.3 days, respectively.

The collected data were compared in two ways. First, the camping group was taken alone with a comparison of the scores before and after the camp (tables 1 and 2). Secondly, the changes in the camping group were compared to changes in the control group. For both comparisons, the one-tailed *t*-test was used.

RESULTS

Analysis of the self-esteem data for both the camping and the noncamping groups is seen in table 1. The mean score for the female campers increased from 66.4 to 73.8 and was significant at a $P \leq 0.0005$ level. The mean for male campers increased from 72.9 to 78.8, significant at the $P \leq 0.001$ level.

The control group (noncampers) also showed greater self-esteem on the retest, although the change was of less magnitude. The means were 72.2 and 74.1 for the females and 70.2 and 75.7 for the males. When the groups were compared, the female campers showed a greater improvement (+ 7.4) in self-esteem than did their noncamping counterparts (+ 1.9). This difference was significant at the level of $P \leq 0.05$. There was an insignificant difference between those males who attended camp (+ 5.8) and those who did not (+ 5.4).

Analysis of the manifest anxiety data for both the camping and the noncamping groups is seen in table 2. A significant decrease in manifest anxiety was observed in both the female (18.7 to 15.4) and the male (16.7 to 12.4) campers. Most of the noncampers also had a lower anxiety score on the retest. The mean score for the females dropped from 16.3 to 14.3 while the mean score for the males dropped from 15.4 to 11.9.

TABLE 1

Comparison of self-esteem in campers and noncampers

Group	Initial test (mean±1 S.D.)	Retest (mean±1 S.D.)	P <	
Camping females	66.4±15.2	73.8±17.4	< .0005	} <.05
Noncamping females	72.2±12.7	74.1±12.6		
Camping males	72.9± 9.5	78.8±11.9	< .001	} N.S.
Noncamping males	70.2±14.2	75.7±15.5		

Although neither was statistically significant, the difference in anxiety change between the female campers and their controls was greater ($t = 0.763$) than the difference between male campers and their controls ($t = 0.332$). As was the case for self-esteem, the "improvement" for campers of both sexes was greater than for their controls.

DISCUSSION

Although there are some feelings to the contrary,^{21,22} most investigators have found a higher incidence of psychological problems in children with diabetes mellitus than in their nondiabetic counterparts.^{9,23-28} One of the more comprehensive studies on this subject was reported by Swift et al.²⁷ in 1967. Using fifty diabetic and fifty nondiabetic controls, they found significant differences in general psychological classification, hostility, sexual identity, oral preoccupation, constriction, dependence-independence, self-percept manifest anxiety and latent anxiety.

It was in an attempt to modify some of these psychological problems that the first diabetic camp was started,¹ and the belief that some of these problems are favorably modified by a camping experience has led to their continued popularity. Sussman et al.⁹ have pointed out the difficulty in defining "precisely what the diabetic child gains from the camping experience." Many investigators^{1,3-6,9-11} have emphasized the gains in self-confidence, self-reliance, self-motivation, and security as being among the greatest benefits realized from camp. Despite the positive feelings relative to the psychological advantage of a special camping experience, objective studies designed to test this concept are not available.

Possible psychological variables which might be affected by such a camp are numerous, and might include: introversion-extroversion, dependence-independence, neurotic tendency, social adjustment, dominance-submissiveness, depression, constriction, and hostility.

TABLE 2

Comparison of manifest anxiety in campers and noncampers

Group	Initial test (mean±1 S.D.)	Retest (mean±1 S.D.)	P <	
Camping females	18.7± 8.1	15.4± 9.4	< .01	} N.S.
Noncamping females	16.3± 5.5	14.3± 6.3		
Camping males	16.7± 7.6	12.4± 7.8	< .01	} N.S.
Noncamping males	15.4± 8.0	11.9±11.1		

We decided to concentrate this portion of the study on two other possible variables: self-esteem and manifest anxiety. These two were chosen because (1) the literature seemed to indicate that both were frequently adversely affected in the juvenile diabetic, (2) objective tests were available, and (3) it appeared that these were the most likely to be affected by the camp experience.

As hypothesized, and in support of the "feelings" about the value of such special camps, the campers demonstrated definite and significant improvement in their self-esteem with a corresponding decrease in their manifest anxiety. Somewhat surprising, however, was the definite improvement noted in the control group of noncampers. Although the camping group consistently demonstrated more improvement than the control group, this difference was statistically significant only for the measurement of self-esteem in the females. It is not felt that with these particular tests any type of "learning" could have taken place—they are not intelligence or skill tests and there were no time limits; nor were the exact purposes of the tests explained until after the second administration. It is possible that the improvement in the control group was due to the so-called "Hawthorne Effect," with the child showing less anxiety or greater self-esteem on the retest because of the attention paid him in the initial visit and test procedure.

On initial inspection, it would appear obvious that the females benefit more from the camp than do the males, particularly with relation to the child's self-esteem. On closer inspection, however, it may be that this difference is due primarily to the lower self-esteem exhibited by the girls who attended camp with a correspondingly "greater room for improvement." Although the mean difference between the camping and noncamping girls in their initial self-esteem appears striking, its statistical significance is questionable ($P \leq 0.1 \cong 0.05$). Demographic data on the two groups of girls revealed less measurable differences than on the boys. The mean and

median ages were similar (11.2 years versus 11.4 years) and the mean educational level of the father in both groups was just over thirteen years. The control group did, however, have a mean duration of diabetes which was almost two years longer than the camping group (4.1 years versus 2.2 years), but the medians were very similar (2.5 years and 2.1 years). It would not appear likely that this small difference would account for the lower self-esteem in the camping group. It would seem likely that the parents who chose to send their children to camp had recognized their child's relative immaturity and altered self-image, and had felt that improvement might occur in a group situation. Conversely, the "motivation" to send their child to camp might not have been as great in our control group.

Lessening of anxiety should parallel improvement in self-esteem and this was certainly true in this study. Both male and female campers showed significant decreases in their levels of manifest anxiety on retesting. However, when compared to the noncamping controls, the difference was not statistically significant.

It is not possible to say whether the camp or the separation (from parents) produced the changes observed; it is likely that both contribute to improvement. The camp provides a structured, well supervised, enjoyable, and in cases of financial need, a low-cost or free method of temporary separation. Also, the parents can send the child to camp without being forced to admit that a separation is needed.

Other psychologic variables need to be evaluated, and this particular study represents our first step in objective evaluation of the psychological impact of diabetic camps. Such studies may provide more objective criteria for the medical staff of such camps in their attempts to serve those children who would derive the greatest benefit.

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