



---

## Psychological Issues in Diabetes

In recent years there has been increasing interest in behavioral, psychological, and social issues concerning diabetes mellitus. In part, this has been stimulated by increased availability of federal funding in support of such studies. *Diabetes Care* has strived to publish original articles, reviews, and special articles dealing with these subjects. Several examples appear in this issue and will be commented upon. Yet, a larger number fail to be published, and our rejection rate for this category of contribution approximates 50%. Thus, an increasing number of manuscripts in this area cross my desk.

Quite frankly, I am troubled by much of what has been and is being written about psychological issues in diabetes. My concerns are categorized below.

*Perpetuated misconceptions.* A number of misconceptions, or myths, have been perpetuated in the literature. These myths result in poorly conceived or irrelevant studies by investigators often unfamiliar with clinical diabetes. Worse, their perpetuation in textbooks and clinical treatises result in treatment practices that are substandard.

The myth of the "diabetic personality" is exploded by Dunn and Turtle in their critical review published in this issue of *Diabetes Care*.<sup>1</sup> It is one myth that has colored contemporary studies, as the investigators seek to define, confirm, or refute various elements of the thesis that there is a "diabetic personality."

The myth that the prescription of more than one insulin injection daily, or the striving for good diabetic control, has adverse psychological effects has been perpetuated in textbooks even as recent as 1981,<sup>2</sup> despite the absence of any reliable data to substantiate these notions. Indeed, in this issue of *Diabetes Care*, Anderson et al. report that diabetic youth in good control, as compared with those in poor control, report fewer symptoms and have less anxiety, a more positive self-concept, and more cohesion with less conflict among family members.<sup>3</sup> This is consistent with previous observations by Simonds,<sup>4,5</sup> although within the parameters exam-

ined in their current study in this issue, Simonds et al. did not find differences dependent on attained glycemic control.<sup>6</sup> Nevertheless, no well-designed study suggests adverse psychological effects from striving for good glycemic control. There are no reports of better psychological adaptation in poorly controlled diabetic subjects than in well-controlled subjects.

Are there adverse psychological effects from prescribing more than one insulin injection daily, using an insulin infusion pump, or instituting home blood glucose monitoring? These subjects are currently being studied, but to date I am unaware of any reports suggesting that these are psychologically harmful. Nevertheless, conventional wisdom has been that young children cannot, should not, or will not take more than one injection or be subjected to home blood glucose monitoring. However, one pediatric colleague chastised me for being reluctant to recommend home blood glucose monitoring to young children. She pointed out that parents were relieved to have the tools to reliably assess their children's health, and appeared to have less anxiety after home monitoring was introduced.<sup>7</sup> There seems no real basis for "conventional wisdom" to the contrary.

*Defective design.* Too often the design of psychological studies has been the use of "standardized" instruments on a cross-section of diabetic subjects, perhaps in comparison with a control group. Dunn and Turtle elsewhere in this issue comment on some problems with such studies, including the selection of control groups.<sup>1</sup> Yet the instruments themselves have inherent problems. For the most part, the instruments have been designed to quantify some psychological parameter that generally characterizes human beings. Although some of these parameters may be of interest as regards diabetes, these instruments have not been designed to assess parameters of specific interest in diabetes. The conventional standardized instruments may be irrelevant to diabetes per se.

Being a biological scientist, I am familiar with quantitative measurements. Standardized psychological instruments, which allegedly measure particular traits, trouble me. The fancy mathematical manipulations necessary to construct instrument scales, subscales, and factors do not reassure me.

Moreover, it seems that a popular design of many "studies" is to apply a battery of instruments to a group of subjects, determine outcomes with multivariate analysis, and look for "statistical significance." This is distinct from the design of biological science, where a specific intervention is made, and specific parameters assessed. The battery approach with multivariate analysis strikes me as a shotgun design, which is conceptually fuzzy, rather than a carefully planned, focused study.

If one measures 20 parameters, and defines "significance" at the 0.05 level, then 1 of the 20 parameters may well be variant and hence labeled "significant." Is it?

With a large enough sample, even correlation coefficients of 0.3 or 0.4 may reach statistical significance. These are not likely to be important correlations. Mathematics alone cannot be used to determine this.

The 0.05 level generally is chosen, by convention, as "significant." Often it seems that results with a P value a little above this are labeled "trends." They may well be, but by definition are not significant statistically, which means they may have occurred by chance alone. Yet, it seems that many psychological papers tend to interpret these "trends" as important positive findings. By definition, they are not.

Scientific rigor is needed in the definition of research questions; selection of methods, subjects, and controls; execution of the experiment; and analysis and interpretation of the findings.

*Clinical irrelevance or distorted priorities.* Emotional considerations are crucial in the management of diabetes.<sup>8</sup> Stress will disrupt diabetes balance, as noted by Lustman et al. in their letter to the Editor in this issue.<sup>9</sup> Moreover, the development of diabetes, having diabetes, treating diabetes, or developing diabetic complications all have their own psychological impact.<sup>10</sup> Major considerations are the impact of diabetes on ordinary living, and the impact of ordinary stresses on diabetic patients. Priorities should be directed toward understanding these interactions and helping diabetic patients live with and control their diabetes. Psychiatric problems may occur, but probably no more frequently than in the general population. These can be de-emphasized.

Intervention strategies, aimed at improving adaptation to and coping with diabetes, need to be studied in typical diabetic patients and particularly those having difficulty coping with diabetes or its treatment regimen. One such strategy is group meetings. These may be an important component of an intensified diabetes management scheme<sup>11</sup> or used to help difficult patients cope, as described by Warren-Boulton in this issue.<sup>12</sup> Other strategies are also being defined and tested.

When testing intervention strategies, appropriate measures must be selected. Basic personality traits are slow to change, if indeed they change at all. Certainly instruments that measure basic personality traits cannot be used to assess any short-term intervention.

Compliance issues are a favorite subject of study. But com-

pliance is hard to measure in terms of diet and activity. Moreover, compliance implies that a patient behaves according to a physician's prescription, regardless of the relevance, understanding, or practicality of that prescription. Rather, it seems that the patient, family, and health providers must negotiate an acceptable, pragmatic plan. The definition of such plans and the implementation of such negotiations seem worthy areas of study. The providers may need as much study and intervention as the patients.

*Conclusions.* Behavioral, psychological, and social issues are important in our understanding of diabetes, its impact, and its management. These will remain fertile areas of study. Credible study will entail more attention to the rigors of experimental design. Clinical practice will be affected by designing relevant studies, pragmatic interventions, and dispelling misconceptions.

JSS

## REFERENCES

- <sup>1</sup> Dunn, S. M., and Turtle, J. R.: The myth of the diabetic personality. *Diabetes Care* 4: 640-46, 1981.
- <sup>2</sup> Felig, P.: The endocrine pancreas: diabetes mellitus. In *Endocrinology and Metabolism*. Felig, P., Baxter, J. D., Broadus, A. E., and Frohman, L. A., Eds. New York, McGraw-Hill, 1981, pp. 761-868.
- <sup>3</sup> Anderson, B. J., Miller, J. P., Auslander, W. F., and Santiago, J. V.: Family characteristics of diabetic adolescents: relationship to metabolic control. *Diabetes Care* 4: 586-94, 1981.
- <sup>4</sup> Simonds, J.: Psychiatric status of diabetic youth matched with a control group. *Diabetes* 26: 921-25, 1977.
- <sup>5</sup> Simonds, J.: Psychiatric status of diabetic youth in good and poor control. *Int. J. Psychiatr. Med.* 7: 133-51, 1977.
- <sup>6</sup> Simonds, J., Goldstein, D., Walker, B., and Rawlings, S.: The relationship between psychological factors and blood glucose regulation in insulin-dependent diabetic adolescents. *Diabetes Care* 4: 610-15, 1981.
- <sup>7</sup> Schiffrin, A.: Personal communication.
- <sup>8</sup> Citrin, W. S., Kleiman, G. A., and Skyler, J. S.: Emotions: a critical factor in diabetic control. In *Diabetes Mellitus: Diagnosis and Treatment*. Davidson, M., Ed. New York, John Wiley & Sons, 1981, pp. 400-22.
- <sup>9</sup> Lustman, P., Carney, R., and Amado, H.: Acute stress and metabolism in diabetes. *Diabetes Care* 4: 658-59, 1981.
- <sup>10</sup> Skyler, J. S.: Living with complications of diabetes. In *Behavioral and Psychological Issues in Diabetes*. Proceedings of the National Conference. Hamburg, B. A., Lipsett, L. F., Inoff, G. E., and Drash, A. L., Eds. Washington, D.C., Government Printing Office, NIH Publication 80-1993, 1980, pp. 167-81.
- <sup>11</sup> Peterson, C. M., Jones, R. L., Dupuis, A., Levine, B. S., Bernstein, R., and O'Shea, M.: Feasibility of improved blood glucose control in patients with insulin dependent diabetes mellitus. *Diabetes Care* 2: 329-35, 1979.
- <sup>12</sup> Warren-Boulton, E., Anderson, B. J., Schwartz, N. L., and Drexler, A. J.: A group approach to the management of diabetes in adolescents and young adults. *Diabetes Care* 4: 620-23, 1981.