

# Controversial Beliefs About Diabetes and Its Care

ROBERT M. ANDERSON, EDD  
MICHAEL B. DONNELLY, PHD  
WAYNE K. DAVIS, PHD

**OBJECTIVE**— The purpose of this study was to identify specific beliefs that differentiate health-care professionals whose attitudes toward diabetes agreed most strongly with a group of national diabetes experts from those whose attitudes disagreed most strongly.

**RESEARCH DESIGN AND METHODS**— The sample for this study included 271 physicians, 834 nurses, and 546 dietitians who completed a Diabetes Attitudes Survey. The sample included specialists in diabetes care and nonspecialists. Controversial beliefs about diabetes and its care were determined by comparing the beliefs of the 10% of the sample whose attitudes were most concordant (with the national panel) with the beliefs of the 10% of the sample whose attitudes were the most discordant. Ten beliefs met the criteria for being defined as controversial.

**RESULTS**— The most controversial beliefs concerned whether the patient or the physician should be the primary decision maker in diabetes care, the meaning of patient noncompliance, and the seriousness of non-insulin-dependent diabetes mellitus. The 10% of the sample with the most discordant attitudes contained a disproportionately large number of physicians, nonspecialists in diabetes, and health-care professionals who had been in practice longer than the other members of the sample.

**CONCLUSIONS**— This study identifies some important differences in beliefs between younger health-care professionals who specialize in diabetes and older nonspecialists. Such beliefs should be addressed in continuing education programs with the aim being to foster the widespread adoption of a contemporary approach to diabetes care.

The National Diabetes Commission's 1975 report to Congress stated that inappropriate attitudes on the part of health-care professionals often lead to negative outcomes for diabetic patients (1). To test this assertion, which was based primarily on anecdotal evidence and observations, the authors developed

a Diabetes Attitude Scale (DAS) (2). Evidence of the validity and reliability of the DAS has been reported previously (3). A previous study indicated that a significant portion of diabetes-related beliefs and attitudes of physicians, nurses, and dietitians were related to their membership in a particular health-care profession (4). Because diabetes care requires effective communication and cooperation among health-care professionals and patients, controversy regarding diabetes and its care could interfere with delivery of optimal health care. In fact, one study found that attitudes of physicians predicted the level of glyce-mic control in their patients (5). Also, controversy between diabetes specialists and nonspecialists regarding diabetes beliefs and attitudes could impede the translation of diabetes research findings into widespread application at the community level.

The purpose of this study was to identify the specific beliefs that differentiate health-care professionals with the most concordant (with a national panel of experts) attitudes toward diabetes from those with the most discordant attitudes.

## RESEARCH DESIGN AND METHODS

Appropriate attitudes were defined by a national panel of 17 diabetes experts who created the items for the original DAS. The panel included three physicians, three nurses, four nutritionists, three consumers of diabetes care, and four behavioral scientists. The panel interacted by mail through a modified Delphi process (6). Panel members were asked to write statements that responded to on a five-point scale that indicates the respondent's degree of agreement or disagreement with the statements. The scale ranged from Strongly Agree to Strongly Disagree. The panel wrote a total of 347 attitude items in four areas: 62 items related to the disease itself, 135 items concerned treating diabetes, 92 items focused on individuals with diabetes, and 58 items were

FROM THE UNIVERSITY OF MICHIGAN MEDICAL SCHOOL, MICHIGAN DIABETES RESEARCH AND TRAINING CENTER, DEPARTMENT OF POSTGRADUATE MEDICINE/HEALTH PROFESSIONS EDUCATION, ANN ARBOR, MICHIGAN; AND THE DEPARTMENT OF SURGERY, UNIVERSITY OF KENTUCKY, COLLEGE OF MEDICINE, LEXINGTON, KENTUCKY.

ADDRESS CORRESPONDENCE AND REPRINT REQUESTS TO ROBERT M. ANDERSON, EDD, MICHIGAN DIABETES RESEARCH AND TRAINING CENTER, TOWSLEY CENTER FOR CONTINUING MEDICAL EDUCATION, ROOM G-1116, BOX 0201, ANN ARBOR, MI 48109-0201.

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about diabetes professional education. Panel members reviewed all 347 items, suggested wording changes, indicated whether the appropriate response to an item (given today's standard of care) was to agree or disagree, and selected 20 items for each of the four areas that they believed addressed important issues in diabetes and should be included in the final scale.

The expert panel was asked to indicate the correct response for each attitude item to provide a gold standard for health-care provider attitudes. This gold standard was established because one of the intended uses for the scale was evaluating the outcome of professional education programs. Items that had at least an 80% level of agreement on the direction of the appropriate response and more than five votes for inclusion were included in the preliminary version of the scale. The result was a DAS reflecting a high level of agreement among a panel of diabetes experts regarding both the significance of the items and their correct responses.

The sample for this study included 271 physicians, 834 nurses, and 546 dietitians. This sample of 1651 health-care professionals included both diabetes specialists (defined as spending >50% of their time on diabetes care) and nonspecialists (<50% time on diabetes care). Two forms of the DAS were used in this study. The entire 50-item DAS was used to measure beliefs (individual item) and the 31-item scale, with eight factors that resulted from the factor analysis, was used to measure attitudes. An individual item on the DAS is considered a belief, whereas the summary statements that characterize the eight factors (i.e., clusters of items) are considered an attitude (7). To identify controversial beliefs about diabetes and its care, the beliefs of the 10% of the sample with the most concordant (most in agreement with the national panel) beliefs toward diabetes were contrasted with the beliefs of the 10% of the sample with the most discordant (least in agreement with the

national panel) beliefs. The concordant and discordant groups of the health-care professionals were determined by using their overall DAS scores.

To be defined as controversial, individual DAS items (beliefs) had to meet three criteria. First, most (>50%) of the concordant group had to agree with the national panel's response to that item (in some instances, agreeing with the national panel meant disagreeing with the item). Second, most of the discordant group had to disagree with the national panel. Third, the difference between the percentage of the two groups

that agreed with the national panel had to be  $\geq 30\%$ . The 30% difference criterion was established because the first two criteria (the 50% rules) used alone would allow an item to be designated as controversial if only 51% of the concordant group agreed with the national panel and up to 49% of the discordant group agreed with it. The eight factor scores of the two groups were also compared to determine on which factors (attitudes) there was the most disagreement.

Descriptive statistics were used to describe the beliefs of concordant and discordant group members on contro-

Table 1—Controversial beliefs related to diabetes

BELIEF	CONCORDANT GROUP (%)	DISCORDANT GROUP (%)	DIFFERENCE BETWEEN PERCENTAGE
APPROPRIATE RESPONSE IS TO DISAGREE*	(% DISAGREE)		
DECISIONS ABOUT MANAGING DIABETES SHOULD BE MADE BY THE PHYSICIAN	91	17	74
POOR COMPLIANCE BY PEOPLE WITH DIABETES INDICATES A LACK OF COMMITMENT TO CONTROLLING THE DISEASE	82	28	54
THE PARENTS OF DIABETIC ADOLESCENTS SHOULD BE RESPONSIBLE FOR THEIR CHILDREN'S ADHERENCE TO THEIR PLAN	96	43	53
DIABETES THAT CAN BE CONTROLLED BY DIET IS A RELATIVELY MILD DISEASE	88	37	51
DIABETES EDUCATORS HAVE AN ADEQUATE BACKGROUND IN EDUCATIONAL PRINCIPLES AND TECHNIQUES	58	9	49
IF PEOPLE WITH DIABETES ARE NOT COOPERATIVE AND COMPLIANT, THERE IS NOT MUCH HEALTH CARE PROFESSIONALS CAN DO FOR THEM	85	37	48
USING THE ADA EXCHANGE LIST IS THE BEST WAY TO TEACH PEOPLE WITH DIABETES ABOUT THEIR DIET	59	14	45
PEOPLE DIAGNOSED WITH INSULIN-DEPENDENT DIABETES SHOULD BE HOSPITALIZED AT THE TIME OF DIAGNOSIS TO FACILITATE EFFECTIVE PATIENT TEACHING	75	34	41
CONTROLLING DIABETES SHOULD BE THE MOST IMPORTANT THING IN THE LIVES OF PEOPLE WITH DIABETES	60	27	33
APPROPRIATE RESPONSE IS TO AGREE*	(% AGREE)		
PEOPLE WITH DIABETES SHOULD CHOOSE THEIR OWN GOALS FOR DIABETES TREATMENT	94	35	59

\*According to the national panel of diabetes experts.

Table 2—Differences in attitudes between concordant and discordant groups

ATTITUDE	CONCORDANT GROUP*	DISCORDANT GROUP*	PROPORTION OF VARIANCE ( $\chi^2$ )†
FACTOR 1: SPECIAL TRAINING IS REQUIRED TO PROVIDE DIABETES CARE	4.76	3.71	0.69
FACTOR 5: DIABETES CARE REQUIRES A TEAM APPROACH	4.84	3.58	0.68
FACTOR 3: PATIENTS SHOULD MAKE THE MAJOR DECISIONS ABOUT DIABETES CARE	4.26	2.93	0.64
FACTOR 6: NON-INSULIN-DEPENDENT DIABETES IS A SERIOUS PROBLEM	4.21	3.01	0.45
FACTOR 4: PATIENTS SHOULD DO WHAT THEY ARE TOLD TO BY HEALTH-CARE PROFESSIONALS	2.21	3.20	0.36
FACTOR 2: THERE IS A RELATIONSHIP BETWEEN HIGH BLOOD GLUCOSE LEVELS AND THE COMPLICATIONS OF DIABETES	4.52	3.83	0.36
FACTOR 8: MOST PATIENT EDUCATION SHOULD OCCUR IN OUTPATIENT SETTINGS	3.89	2.95	0.26
FACTOR 7: DIABETES IS DIFFICULT TO TREAT BECAUSE OF NONCOMPLIANCE	3.40	2.88	0.21

\*Values are mean scores with 5 = strongly agree, 3 = neutral, and 1 = strongly disagree. All differences significant at  $P < 0.001$ . All negative items recoded so that a higher score means closer agreement with the national panel of experts.

† $\chi^2$ , proportion of variance accounted for by group membership.

versal items. To compare the differences in attitudes between the concordant and discordant groups, mean responses to each of the factor scores were computed, and an estimate of the proportion of variance accounted for by membership in either the concordant or discordant group was computed using the  $\eta^2$  statistic. The proportion of physicians, nurses, and dietitians in the entire sample, and the proportion identified in the concordant and discordant groups was then computed. A one sample  $t$  test for proportions comparing whether the proportions of a subsample were significantly different from the proportions of the entire sample was used to determine the relationship between health-care professional type (physician, nurse, and dietitian) and membership in the concordant and discordant groups (8). The same one sample  $t$  test was used to determine the relationship between being a specialist or nonspecialist in membership in the concordant and discordant groups.

For continuous variables, such as years since last academic degree, a two-way analysis of variance was used with the first independent factor being health-care professional group (MD, RN, RD), and the second factor was group membership (concordant group, middle group,

and discordant group). The Spjøtvoll-Stoline modification of Tukey's honestly significant difference test was used to determine differences in individual comparisons based on discordant group and concordant group membership and responses to the controversial belief items. An independent group's  $t$  test was used to determine if there were significant differences between the responses of the discordant and concordant groups on the 50 items in the DAS and to determine whether there were differences in the mean scores on the attitude subscales between these two groups.

**RESULTS**— There were significant differences between the responses of the discordant and concordant groups on 49 of 50 items in the DAS ( $P < 0.001$ ). Using the three criteria stated in the Methods Section, 10 DAS items (beliefs) were defined as controversial. These items are listed in Table 1, along with the percentage of the members of the concordant and discordant groups that agreed with the national panel (which in most cases meant disagreeing with the item) and the percentage difference in response between the two groups.

Differences in attitudes (factor scores) between the concordant and discordant group are shown in Table 2. All pairs of mean scores reported for all eight

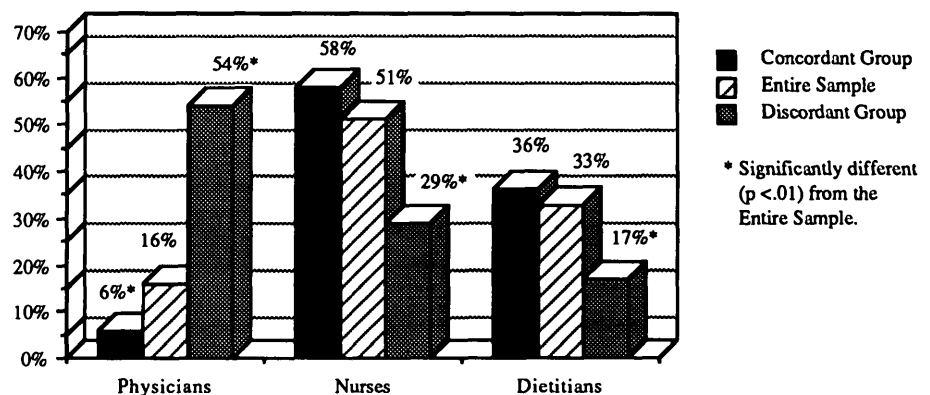
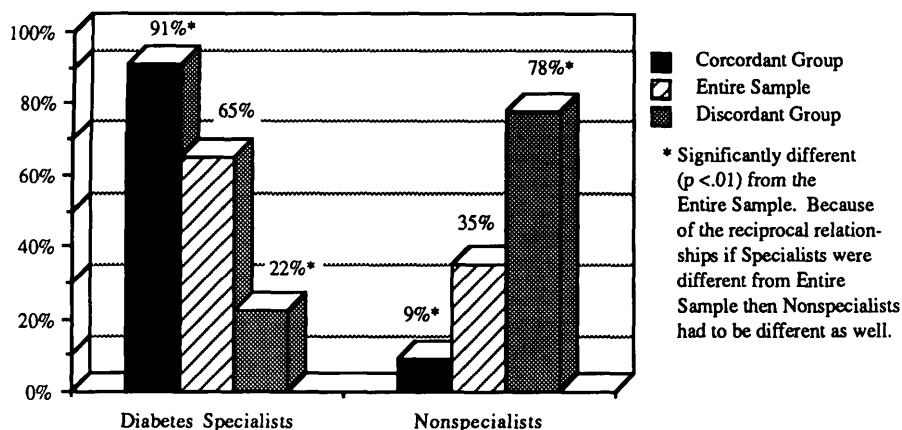


Figure 1—Distribution of physicians, nurses, and dietitians among concordant group, discordant group, and entire sample



**Figure 2**—Distribution of diabetes specialists and nonspecialists among concordant group, discordant group, and entire sample.

factors were significantly different ( $P < 0.001$ ). Because the national panel agreed more strongly with the attitudes espoused in seven of the eight factors (all but factor 4: patients should do what they are told to by health-care professions), the mean score for the concordant group was higher than the discordant group for these seven factors. The  $\eta^2$  statistic displayed in the right-hand column indicates the amount of variance in responses that was accounted for by group membership.

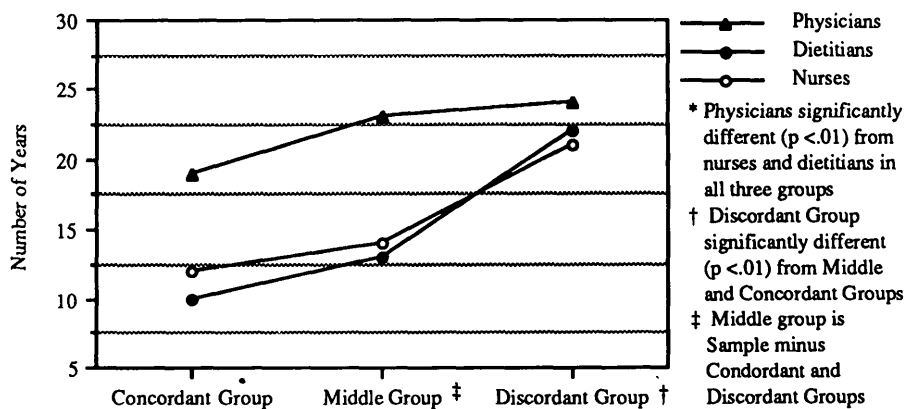
The bar graph in Fig. 1 displays the distribution of physicians, nurses, and dietitians contained in the entire sample and in the concordant and discordant groups. Whereas 16% of the entire sample were physicians, 54% of the discordant group were physicians, and 6% of the concordant group were physicians. Nurses and dietitians were underrepresented in the discordant group. The relationship between diabetes specialization and membership in the concordant and discordant groups is displayed in Fig. 2. Sixty-five percent of the entire sample identified themselves as diabetes specialists. However, 91% of the concordant group were diabetes specialists. The relationship between length of time since completing training and concordance with the national experts on diabetes be-

liefs is displayed in Fig. 3. For all three groups (physicians, nurses, and dietitians) there was an inverse relationship between the number of years since completing training and agreement with the national panel. Also apparent in Fig. 3 is the longer period of time since training for the physicians than for the other two groups of health-care professionals.

**CONCLUSIONS**— The discordant group is a physician-dominated older group of health-care professionals, most of whom do not specialize in diabetes. These findings suggest that beliefs and attitudes

widely held among more recently educated health-care professionals and diabetes experts have not been adopted by older health-care professionals outside the specialty. This interpretation is supported by a recent study conducted in Pennsylvania that found that older physicians and general practitioners were most likely to deviate from the standards of medical care for diabetic patients published by the American Diabetes Association (10). The identification of these controversial beliefs can help shape the thrust of diabetes professional education geared toward nonspecialists. For example, professional education programs need to stress that non-insulin-dependent diabetes mellitus, even if controlled by diet alone, is a serious disease that can have deleterious consequences for patients. Diabetes education programs should also stress that effective diabetes care requires patients to accept a major responsibility for the daily treatment of their diabetes, and that patients need to be supported by their physicians in carrying out this responsibility.

The discordant group's beliefs can be viewed as the traditional medical approach to diabetes care, i.e., the major decisions about diabetes care should be made by physicians alone and self-care means simply following a physician's recommendations. Physicians may be so overrepresented among the discordant group because the modern approach to



**Figure 3**—Mean years since last academic degree for physicians, nurses, and dietitians in concordant, middle, and discordant groups.

diabetes care requires a shift of authority and responsibility traditionally reserved for physicians to nurses, dietitians, and especially patients. The beliefs underlying the traditional medical approach to care are consistent with, and possibly appropriate for, treating acute conditions. However, the concept of the physician alone making the major diabetes care decisions, which are then carried out by patients, nurses, and dietitians, is inconsistent with the current approach to diabetes care. Although the team approach to diabetes care, with the patient as a central team member, seems well accepted by diabetes specialists, this study indicates it is not well accepted by many nonspecialists. The provision of optimal diabetes care is not merely a question of applying the most current technology to the treatment of diabetes, it involves significant role reorientations for physicians, nurses, dietitians, and patients (4). The team approach to diabetes care calls for a cooperative style of decision making that differs from the traditional medical model. This study suggests that professional educational programs about diabetes should seek to

influence the attitudes of nonspecialists as they seek to transfer the current technology of diabetes care.

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