

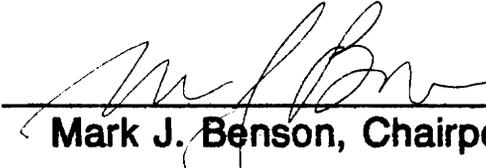
**Stress and Coping Among  
Adolescent Diabetics**

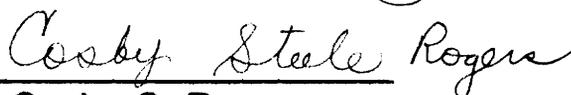
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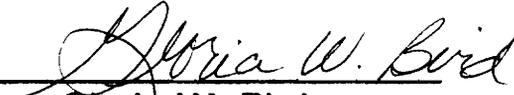
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**Thesis submitted to the Faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements  
for the degree of  
Master of Science  
in  
Child Development**

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**February 1995  
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**STRESS AND COPING AMONG  
ADOLESCENT DIABETICS**

by

Jami S. Pond

Committee Chairperson: Mark J. Benson

Family and Child Development

**(ABSTRACT)**

The relationship between coping and adjustment, optimism, and frequency of blood glucose monitoring was examined in 99 adolescents (88 female, 11 male). Participants were between the ages of 12 and 18 with a mean age of 14.8 years. Mean duration of diabetes at the time of participation was 5.3 years. Coping theory using approach and avoidance techniques (Ebata & Moos, 1991) along with Scheier and Carver's (1992) theory of optimism are the basis of the theoretical framework. Regression analysis was used to determine the relationships between coping, adjustment and frequency of blood glucose monitoring. Results indicate that perceived stress to being diabetic was related to lower adjustment and less optimism. Use of approach coping techniques was linked to greater adjustment and optimism. Use of avoidance coping techniques was associated with poorer adjustment. Although, avoidance coping may be beneficial in attempting to reduce the tension and anxiety surrounding the day-to-day stressors or chronic hindrances

of diabetes, continued use can result in serious health consequences. Duration of the disease, perceived stress, and optimism were all found to be related to frequency of blood glucose monitoring. Blood glucose monitoring is one of several adherence behaviors employed by diabetics to improve their control. Previous research found that tighter control achieved by increasing the frequency of blood glucose monitoring and insulin injections significantly reduces the risk of long-term complications ("Living Well," 1993).

## ACKNOWLEDGEMENTS

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## Introduction

Insulin Dependent Diabetes Mellitus (IDDM) affects more than one million people in the United States, according to the National Institute of Diabetes and Digestive Kidney Disease ("Living Well," 1993). It develops most often in children and young adults (Bode, Brackenridge, Streater, & Warshaw, 1993). Diabetes is a chronic and incurable disease. Unlike other diseases, the responsibility for the day-to-day management of diabetes is transferred from the physician to the patient (Anderson, Fitzgerald, Gorenflo, & Oh, 1993). Assuming responsibility for daily care involves implementing a semi-rigid schedule requiring a major adjustment in life style (Eiser, 1985; Harris, Linn, & Pollack, 1984; Wilkinson, 1987). There is a wide variation among diabetics in the degree to which they struggle with their illness and experience adjustment problems (Hamburg & Inoff, 1985; Johnson, 1988).

One important factor with potential influence on this variation among diabetics is coping. Using the coping theory developed by Ebata & Moos (1994) this study examines the variations in coping among adolescent diabetics. The Ebata and Moos theory views coping as behavioral or cognitive attempts that are either approach (direct) or avoidance (indirect) efforts to manage a problem. Approach coping is problem-focused and is based on attempts to master or resolve the stressors. There is a wide variation among

diabetics in the degree to which they struggle with their illness and experience adjustment problems (Hamburg & Inoff, 1985; Johnson, 1988). One important factor with potential influence on this variation among diabetics is coping. The coping model developed by Ebata and Moos (1991,1994) views coping as behavioral or cognitive attempts at coping that are either approach (direct) or avoidance (indirect) efforts to manage a problem.

Approach coping is problem-focused and is based on attempts to master or resolve the stressors. Approach coping includes logical analysis, positive reappraisal, guidance/support, and problem solving. Examples of approach coping refer to the attempt to understand and mentally prepare; to view a problem in a positive way while still accepting the problem realistically; to seek information, guidance, and support; and to take action and deal directly with the problem. Older teenagers generally use a broader range of problem solving coping strategies, and the coping strategies they choose are more similar to those of adults than those of children (Hauser & Bowlds, 1990).

In contrast to approach coping, avoidance coping reflects attempts to deny or minimize the stressor and its implications. Avoidance methods include cognitive avoidance, resigned acceptance, alternative rewards, and emotional discharge. Examples of avoidance coping are attempts to avoid thinking

realistically about the problem, reacting to the problem by passively accepting it, attempting to get involved in substitute activities, creating alternative sources of satisfaction, and the reduction of tension by expressing negative feelings (Ebata & Moos, 1991, 1994). Research on adolescents coping with a life threatening event indicated use of a variety of approach coping strategies, but little use of avoidance strategies (Zeidner, 1993).

Several researchers have found that stressors are an important component of coping. Pearlin and Schooler (1982) regard coping as inseparable from the life-strains or stressors the individual experiences. To be able to understand coping it is necessary to analyze it in the context of the bothersome tasks or stressors that are associated with the daily experience of being diabetic. How strongly an individual is affected by these daily stressors often mediates how a person is able to cope. Among adolescent diabetics the presence of perceived diabetes-related stressors may influence coping as well as adjustment, optimism, and adherence to daily regimen; including insulin injections and blood glucose monitoring. These stressors put constraints on day-to-day life and one's sense of freedom, disrupting routine self-care behaviors, including diet management, exercise, insulin injections, and the frequency of blood glucose monitoring (Cox & Gonder-Frederick, 1991; Frenzel,

McCaul, Glasgow, & Schafer, 1988; Jacobson & Leibovich, 1984; Johnson, 1982, 1988; Johnson & Rosenbloom, 1982; May, 1991). Cox and Gonder-Frederick also found that blood glucose level may affect stress and that stress may affect blood glucose levels. Consequently stress may affect blood glucose monitoring and blood glucose monitoring may affect stress. When stress is elevating blood glucose levels the frequency of blood glucose monitoring may decrease. Conversely, when blood glucose monitoring is conducted regularly and the glucose levels are high for no apparent reason, an individuals stress level may increase also.

In research conducted by Altshuler and Ruble (1989) the distinction between controllable and uncontrollable stressors indicates the type of coping used to deal with the problem. Stressors that are considered to be controllable tend to be coped with by using approach coping strategies. Stressors that are considered to be uncontrollable tend to be coped with by using avoidance coping strategies. They also found that avoidance may not always be an effective coping strategy. In certain situations and for certain people, like those with diabetes, relying on avoidance coping may have detrimental effects.

Adjustment is an important cognitive and behavioral outcome of coping. Research conducted by Sullivan (1979a, 1979b) assess diabetic adolescent girls' attitudes about their

diabetes and adjustment. Although most of the participants in the study has adjusted well to their diabetes, those with poorer attitudes also suffered from more depression and had lower self-esteem. To successfully adjust to a chronic disease Schnatz (1982) has identified six typical stages. The first stage is disbelief and denial. In the second stage the person begins to develop an awareness of the disease. As awareness increases, the third stage, reorganization begins to take place. During the first three stages the person gradually allows more information in and begins to make sense of this information, leading to the fourth stage, which is resolution. With resolution and the fifth stage, identity change, the person begins incorporating control of the disease into their life-style. This leads to the sixth stage which is successful adjustment.

Similarly, Anderson and Genthner (1990) found that successful adjustment to chronic diseases like diabetes is enhanced when patients are able to accept personal responsibility for having and treating their diabetes. He describes five levels of personal responsibility. At level 1, diabetics take no responsibility for managing their disease. They are overwhelmed by life and rarely accept the consequences of their actions. At level 2 they depersonalize their approach to diabetes. They begin to take some personal responsibility by becoming angry and using this

anger to fight back. Individuals at level 3 begin to verbalize some responsibility for themselves; for their feelings, thoughts, and self-care. Personal growth often occurs at this level and energy is used in a more productive manner. At level 4 people rarely blame others for their circumstances and seldom dwell on the negative aspects of diabetes. Level 5 is achieved when patients accept total responsibility for their lives. They acknowledge diabetes as a fact of life and do not waste energy resisting the disease or the self-care it demands. Diabetics at this level are not tormented by doubt. If mistakes are made they use the information to redirect future behavior and they ask for help when necessary, but they take responsibility for implementing the solution. The type of coping strategy employed, the stress level associated with the daily hindrances of being diabetic, as well as several independent background variables have an effect on how an individual adjusts.

Optimism among diabetics may also be influenced by coping. People who believe the problems they confront can be overcome are more optimistic about their health (Carver & Scheier, 1985). Carver and Scheier also found that optimism affects expectancies of being able to cope successfully. Similarly, perceived control was found to have an effect on optimism in two studies. First, among high school students, a significant positive correlation was found between locus of

control and optimism about potential health problems (Hoorens & Buunk, 1993). Second, adolescents with greater perceived control in a life threatening event were more optimistic than those who believed they had no control over the situation (Zeidner,1993). Thus diabetic individuals who cope with their disease using predominately approach methods should tend to be more optimistic than those using predominately avoidance methods.

In order to strive to control diabetes Johnson et al. (1986) describe thirteen behaviors of compliance or adherence. Frequency of blood glucose monitoring is one of these behaviors. Blood glucose testing is a complex skill involving finger pricking to obtain a drop of blood, accurate timing, and an understanding of how to interpret the result (May, 1991). This test result provides the diabetic with immediate information, however, to be beneficial this knowledge must produce a behavioral action. Blood glucose monitoring provides an extremely accurate indicator of control at a given time. Blood glucose monitoring provides patients with a sense of pride in their ability to cognitively interpret the results and behaviorally engage in a physical act to adjust their blood glucose when necessary. Diabetes presents an unending challenge to achieve and continuously maintain good control which is more likely to occur when immediate action can be initiated by the individual.

## Research Questions

Based on the cited literature and theory, several hypotheses evolved in an effort to answer the following research questions:

1. Are approach coping or avoidance coping related to the adjustment of adolescent diabetics?
2. Are approach coping or avoidance coping related to the optimism of adolescent diabetics?
3. Are approach coping or avoidance coping related to the frequency of blood glucose monitoring done by adolescent diabetics?
4. Do stressors, the day-to-day hassles of being diabetic, significantly affect adjustment and optimism of adolescent diabetics?
5. Which background variables are related to adjustment and optimism?

The overall goal of the research is to address these questions and thereby assist diabetics and their families in understanding better ways of coping with diabetes to help in achieving more productive and satisfying lives.

## Method

### Participants and Procedure

This study is based on data collected from insulin dependent diabetics between the ages of 12 and 18. A list of 236 possible participants was compiled from the pen pals columns of the June 1993 to July 1994 issues of Diabetic Forecast, a monthly magazine published by the American Diabetes Association with a subscription circulation of 750,000. This possible sample of 236 adolescents ranged in age from 12 to 18 years of age, with 35 being male and 201 being female.

The names and addresses of possible respondents were entered into the computer to generate mailing labels. These labels were used to mail survey packets to all possible participants. Two mailings were sent to each participant. The first mailing was addressed "To the Parents of (child's name)" and included a cover letter/consent form (See Appendix A) informing them that their child would be receiving a packet in the mail in the next few days. The second mailing, addressed to the child, included a cover letter/consent form (See Appendix B), a questionnaire booklet (See Appendix C), and a postage paid return envelope. Participants were asked to fill out a short questionnaire requesting demographic information and five scales to assess health locus of control, adjustment, optimism, attitude, and coping. Table 1 contains

characteristics of the scales used in the study, their means, standard deviations, and internal consistency measures. The scales are discussed in detail below. Each questionnaire had an identification number printed in the bottom right hand corner that corresponded to the mailing list. This identification number was used to determine which participants had not responded.

Although there were no special risks associated with filling out this questionnaire, a written informed consent form was sent in the packet to the participants and was completed by a parent of each participant as well as the participant. It was believed that most of the possible participants would respond because of a desire to help other diabetics accept and cope with their disease in the best way possible.

A total of 99 adolescents consisting of 11 males (11.1%) and 88 females (88.9%) mailed back the questionnaire and participated in the study. The participants ranged in age from 12 to 18 ( $M = 14.8$ ,  $SD = 1.8$ ) and had been diabetic from one to 17 years ( $M = 5.3$ ,  $SD = 3.5$ ). The ethnic background listed by the participants were 93.9% White, 0.0% African-American, 0.0% Asian, and 6.1% other backgrounds.

### Measures

Coping. Respondent's coping with problems related to diabetes were assessed using the 48 item Coping Response Inventory-Youth Form (CRI-Y) (Ebata & Moos, 1991, 1994).

Ebata and Moos introduce their study with a prompt that says, "Please think about the most important problem you have experienced in the last 12 months (for example, problems with your parents, problems with school, a serious illness or accident, or death of a family member or a friend). Describe the problem in the space below. If you have not experienced a major problem, then list a minor problem you have had to deal with. Be as specific as you can." Following the above prompt are ten questions about the problem. For this research, the prompt was changed to say, "Please think about the most important problem related to your diabetes that you have experienced in the last 12 months. Describe the problem in the space below. Be as specific as you can." This change was made because this study involved the assessment of diabetic problems. The ten questions about the problem were deleted since they were not used for scoring. This introductory section was followed by 48 items, each of which the respondent is asked to answer on a 4-point response scale ranging from no (1) to yes, fairly often (4). The sum of items in each coping domain, ranging from 24 to 96, are summed to provide a total scale score. For this study, the two domains of approach coping and avoidance coping were used. The internal consistencies reliability measure for the subscales were .84 and .82 respectively with an overall coping reliability measure of .88.

The CRI-Y was created by developing an initial set of coping items from several sources, adapting them to be more relevant and understandable to adolescents, and conducting pilot interviews with 40 adolescents. This led to an interim inventory with 72 coping items. Items were eliminated that were difficult to understand or that could not be reliably placed in a conceptual dimension. This resulted in the final 48-item scale that assesses eight dimensions that reflect approach (direct) and avoidance (indirect) coping domains.

Approach coping is problem focused and reflects cognitive and behavioral attempts to master or resolve life stressors. This includes: logical analysis, where attempts are made to understand and mentally prepare for a stressor; positive reappraisal, where attempts are made to view the problem in a positive way while still accepting the reality of the situation; guidance/support where attempts are made to seek information, guidance, or support; and problem solving, where attempts are made to take action and deal directly with the problem.

Avoidance coping tends to be emotion focused and reflects cognitive and behavioral attempts to avoid thinking about a stressor and its implications. Avoidance methods include: cognitive avoidance, where attempts are made to avoid realistically thinking about the problem; resigned acceptance, where attempts are made to react to the

problem by passively accepting it; alternative rewards, where attempts are made to get involved in substitute activities; and emotional discharge, where attempts are made to reduce tension by expressing negative feelings.

Stressors Selected questions from two instruments were used to measure stressors related to dealing with the day to day activities required for diabetics, . Ten items were selected from the Diabetes Care Profile (DCP) (Davis, Hess, Van Harrison, & Hiss, 1987) and three items were selected from the Diabetes Attitude Survey (Anderson, Donnelly, & Dedrick, 1990; Anderson, Donnelly, Gressard, & Dedrick, 1989).

The 118 item DCP was designed to measure and summarize an individual's attitudes, beliefs, and behaviors concerning diabetes and the treatment regimen associated with it (Hess, Davis, & Van Harrison, 1986). In this study 10 questions from the social and personal factors subscale and two questions from the attitude towards diabetes subscale were administered. These questions were answered using a Likert type format with responses ranging from strongly disagree (5) to strongly agree (1). One modified question, pertaining to understanding of diabetes and its treatment, was asked from the monitoring subscale. This question used a Likert type format with responses ranging from excellent (5) to poor (1). In this study a factor analysis yielded one

robust factor with strong item loadings for ten of the items. These factors were found to measure bothersome tasks or stressors associated with having diabetes and had an internal consistency reliability measure of .83.

The DCP contains subscales that assess control, social and personal factors, attitude, long term outcomes, regimen compliance, and social support (Davis et al., 1987). The DCP was made diabetes specific to maximize validity and reliability (Hess et al., 1986). The scale has an acceptable internal consistency with Cronbach's alpha coefficients ranging from .69 to .86 across subscales and criterion related validity (Davis et al., 1987).

The 50-item Diabetes Attitude Survey is for patients and professionals who work with diabetics. The items are formatted in a Likert-type scale with responses ranging from strongly agree (5) to strongly disagree (1). The selected questions used in this study assessed importance of controlling diabetes, parental control of diabetes, and seriousness of diabetes. These questions were subsequently found to be not relevant to the purpose of this study.

Adjustment. The Diabetic Adjustment Scale (DAS) assessed views of diabetes, its treatment, and the influences on daily functioning (Hauser, Jacobson, Wertlieb, , Brink, & Wentworth, 1985). The DAS is a self report measure

constructed by Sullivan (1979a, 1979b). Items were originally gathered from interviews with adolescents, their parents, their clinicians, and other family members (Sullivan, 1979a). The interviews focused on ways that diabetes affects the lives of people with the disease. Additional items were formulated based on literature dealing with adolescent development and psychological aspects of diabetes. The current revised version was assembled with input from clinicians who judged the items as best reflecting how diabetes influences lifestyles (Hauser et al., 1985). This 68-item scale rates the extent to which the items are true for the individual based on a scale ranging from always (5) to does not apply (0). The scale measures adjustment in five categories: attitudes toward diabetes and body functioning, peer adjustment, school adjustment, dependence-independence issues, and family relationships (Jacobson et al., 1990; Smith, Mauseth, Palmer, Pecoraro, & Wenet, 1991). Previous psychometric studies done by Sullivan (1979a; 1979b) indicated strong correlations between the DAS and the child's self esteem and various indices of depression which lend support to the validity of the DAS (Hauser et al., 1992; Jacobson et al., 1990). Hauser et al. (1985) found numerous significant correlations between the Family Environment Scale and the DAS. Most prominent is the family's emphasis on personal growth (independence) and systems

maintenance (organization). For this study the school adjustment subscale and the information items were not included, and the format of the questionnaire was modified to improve psychometry. The total 42 item scales used in this study had an internal consistency reliability measure of .86.

Optimism. The Life Orientation Test (LOT) measured people's expectancies of being able to cope successfully (Carver & Scheier, 1985). The scale assesses optimism versus pessimism. The LOT consists of 13 statements: five optimistically phrased, four pessimistically phrased, and four fillers to mask the purpose of the scale. Respondents indicate on a Likert type scale from strongly disagree (1) to strongly agree (5) (Carver & Scheier). The items are high in face validity and simply inquire about a person's general expectations regarding the favorability of future outcomes by asking questions like "I hardly ever expect things to go my way," and "I'm always optimistic about my future." After appropriate reversals, responses to items are summed. Higher scores indicate greater optimism (Scheier & Carver, 1992). Scores can range from 9 to 45. The LOT has an acceptable level of internal consistency with a Cronbach's  $\alpha$  of .76. The test-retest correlation was .79. This suggests that the LOT is reasonably stable across time (Carver & Scheier). The response format has been modified to improve

psychometry. The internal consistency found in this study was .80.

Locus of Control. The Health Locus of Control (HLC) scale provides general and specific measures of the individual's orientation regarding internal and external locus of control (Wallston, Wallston, Kaplan, & Maides, 1976). Using various analyses a final scale consisting of 11 Likert-type format items ranging from strongly disagree (1) to strongly agree (6) equally balanced between internally and externally worded items was developed. The potential range is from 11 to 66. The reliability for the overall scale, when used in this study was low,  $\alpha = .51$ . Subsequent exploratory factor analyses of the scale failed to indicate cohesive factors that could identify a possible subscale with sufficient internal consistency. Because of the poor reliability of the scale, it was not included in subsequent analyses.

Diabetes History and Background. Questions pertaining to birth date, last grade completed, gender, diagnosis of diabetes, complications, number of injections, number of glucose checks, ethnic background, and parental education level were asked.

## Results

### Intercorrelations Among Variables

In order to assess the relationship between the independent and dependent variables, Figure 1 was created. It is used to demonstrate the three levels of independent variables and how they relate to the dependent variables.

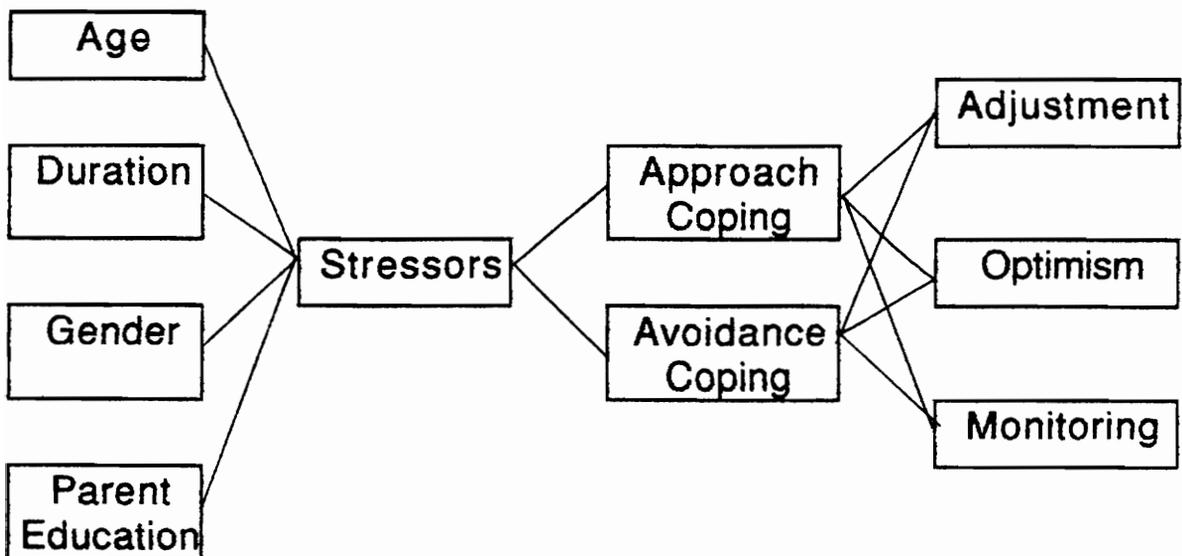


Figure 1. Relationship Between the Independent and Dependent Variables

Background Variables. Because mother's education and father's education had a high intercorrelation (.63,  $p < .001$ ), education level for both parents was summed for subsequent analysis. The variables of age, duration, gender, and parents' level of education were analyzed to determine the potential influence of background variables. Intercorrelations among

these variables were examined in Table 2. Duration was found to be highly correlated with age. The longer that the individual had been diabetic, the older they were. None of the other background variables were significantly related to one another (See Table 2).

Stressors and Coping Variables. Among the stress and coping variables a significant correlation was found between avoidance coping strategies and stressors ( $r = +.33$ ,  $p < .001$ ). Adolescents who felt more stressed by the chronic irritants or hassles of being diabetic used more coping avoidance strategies. In addition, approach and avoidance were related ( $r = .58$ ,  $p < .001$ ). Stressors were unrelated to the frequency of the use of approach coping.

Dependent Variables. Two significant correlations were found among the dependent variables of adjustment, coping, and blood glucose monitoring. First, the level of adjustment was found to be higher in the adolescents who were more optimistic ( $r = +.59$ ,  $p < .001$ ). Second, optimism was higher for the adolescents who tested their blood glucose level more frequently ( $r = +.23$ ,  $p < .05$ ). Adjustment was unrelated to monitoring.

### Regressions

Regressions were conducted based on the correlation matrix, means, and standard deviations presented in Table 2. A series of three-step regression analyses were conducted

to predict the dependent variables of adjustment and optimism using both coping dimensions after controlling for age, duration, gender, and level of parental education, as well as stressors. The results of these regressions are described below.

As shown in Table 3, stressors were negatively associated with adjustment. In addition, approach coping was positively related to adjustment and avoidance coping was negatively related to adjustment.

Next, a similar regression was conducted using optimism as the dependent variable. As shown in Table 4, stressors were negatively associated with optimism. In addition, approach coping was positively associated with optimism.

Because the intercorrelations between approach and avoidance coping ( $r = .58, p < .001$ ) was moderately high and significant, separate 3rd step regressions were conducted. The collinear relationship between these variables could affect the regression results. The pattern of significant findings from Tables 3 and 4 are identical to these separate regressions with one exception. The relationship between approach coping and adjustment became non-significant when only approach coping was in the equation.

Additionally, a simultaneous entry regression was conducted using frequency of blood glucose monitoring as the dependent variable. As shown in Table 5, three variables

were positively associated with frequency of blood glucose monitoring. These variables were duration, stressors, and optimism.

## Discussion

The findings in this study suggest that stressors are linked to adjustment, optimism, and frequency of blood glucose monitoring. Additionally, coping style is linked to adjustment and optimism. Both duration and optimism are linked to frequency of blood glucose monitoring.

### Background Variables Associated with Adjustment

Perceived stressors related to the day-to-day living with diabetes are negatively associated with adjustment. This finding indicates that the more the individual feels that their life is limited by the chronic hindrances of diabetes (i.e. keeps them from being as active as they want, eating foods that they want, having a schedule they like) the lower their level of adjustment. With the advances that have been made in monitoring and maintaining diabetes control and treatments for complications when they do occur, diabetics, especially adolescent diabetics, should not allow their diabetes to limit their lives. This should be especially true after assuming responsibility for all aspects of self-care and adjustment to the life style changes necessary to maintain good health. In fact, adolescents should be encouraged to set goals and expect to achieve them (Drash & Berlin, 1985). The findings from this study imply that the way diabetics view the stressors of being diabetic and how they allow those

stressors to contribute to their adjustment needs to be explored in more depth.

Avoidance coping strategies are negatively related to adjustment. These findings seem to indicate that the use of avoidance coping results in poorer adjustment to being diabetic. Ebata and Moos (1991) found similar results in their research. The adolescents in their sample were the same age range as the participants in this study (12 and 18). This study used the same scale as the Ebata and Moos study, however, they separated the scale into eight subscales compared to our two subscales. In general, they found that adolescents using more avoidance coping subscales reported being more distressed. Conversely, the adolescents who used more approach coping subscales reported higher levels of well-being. In this study, however, the use of approach coping strategies did not necessarily result in better adjustment. The results of this study are similar to those found by Hanson et al. (1989). They found that high life stress was a predictor of the use of avoidance coping styles. Their research also indicates that the intermittent use of avoidance strategies may be useful in preventing the stressors from becoming overwhelming, allowing gradual adjustment to the stressors. Avoidance may assist in the reduction of tension and anxiety surrounding the day-to-day stressors of diabetes when the individual feels that there is

no opportunity to control the situation. Ebata and Moos (1991) conducted research that resulted in a similar finding. Avoidance coping strategies are more likely to be employed by distressed adolescents, and adolescents who consistently employ avoidance coping strategies are more likely to experience poor adjustment when confronted with subsequent stressors. In a subsequent study, (Ebata & Moos, 1994) previous use of either approach or avoidance coping styles were predictors of later coping. They also found that avoidance coping was more frequently used by adolescents who had experienced more chronic stressors. The findings from this study demonstrate a need for further research looking into how these stressors, based on the day-to-day tasks involved in being diabetic, can be perceived differently so that the use of avoidance coping is limited and the use of approach coping is increased to improve adjustment.

### Background Variables Associated with Optimism

Perceived stressors are negatively associated with optimism. This relationship indicates that the more an individual feels that the day-to-day chronic hindrances of being diabetic are stressors the less optimistic they tended to be. This result is similar to results from research done by Scheier and Carver (1992) in which they found that lower levels of distress among people experiencing difficult times

were associated with optimism. Scheier and Carver also noted that optimists reported the tendency to be less focused on the negative aspects of their illness. This was indicated in the current study also. The findings from this study and previous research indicate that the results of recent studies need to reach the people suffering from diabetes. By informing diabetics of the significant improvements in care and control that reduce the risk of long-term complications ("Living Well," 1993) optimism may in turn be increased. This is an important finding that should be addressed in future research.

Coping approach strategies are positively linked to optimism. Previous research found that adolescents who perceived stressors as controllable and challenging used more approach coping techniques (Ebata & Moos, 1994) and that people who view outcomes as attainable continue attempts to reach their goals (Scheier & Carver, 1992). Both results are similar to the results of this study showing adolescents that are more optimistic use more approach coping mechanisms. Diabetic adolescents who use more approach coping mechanisms may have accepted the reality of their illness. The reality being that better health can be obtained if the individual employs mainly behavioral approach strategies to attempt to control their diabetes (diet, exercise, injections, and monitoring). This is similar to

research conducted by Johnson (1982) indicating that adolescents are interested in learning, especially when this increased knowledge creates greater flexibility in diabetes management. Based on the results of this study and previous research future research needs to look at ways of increasing the use of approach coping tactics especially in diabetics.

### Variables Associated with Blood Glucose Monitoring

The duration of diabetes is positively associated with frequency of blood glucose monitoring. A similar association was found by Johnson et al. (1986). In their study, females with a longer duration of diabetes were found to test their blood glucose level more frequently than females with shorter durations, and more often than males regardless of duration.

The association between duration and frequency of blood glucose monitoring may be a direct result of research advances resulting in new discoveries (for example The Diabetes Control and Complications Trial (DCCT) - a 10-year study completed in June of 1993) proving that tighter control (increasing the frequency of blood glucose monitoring and insulin injections) significantly reduces the risk of long-term complications ("Living Well," 1993). With the completion of studies like the DCCT, the standard of practice prescribed by the participants' doctors change. The current trend in diabetes management is towards multiple daily injections (the mean for participants in this study was 2.4 injections per day)

or continuous infusion through the use of insulin pumps. In order to successfully administer multiple injections or continuous infusions of insulin, increased monitoring becomes a necessity for making informed insulin dosage decisions. Advances such as these increase blood glucose monitoring in an attempt to achieve better control and reduce the likelihood of complications.

Diabetic stressors are positively associated with frequency of blood glucose monitoring. One possible explanation of this finding is that perhaps individuals who suffer the most from the chronic hindrances of being diabetic are also the individuals who employ rigid adherence behaviors in attempts to control their diabetes. Johnson et al. (1986) created a list of thirteen compliance or adherence behaviors of which frequency of blood glucose monitoring is one.

Optimism was positively associated with frequency of blood glucose monitoring. This finding is probably related to the new discoveries in the management of IDDM discussed above. With the completion of the DCCT in June of 1993 and the distribution of this questionnaire relatively soon afterwards, it is assumed that optimism would be related to increased blood glucose monitoring. This would seem especially true since a significant relationship was found between reducing risks of long-term complications and frequency of blood glucose monitoring ("Living Well," 1993).

Anything that reduces the threat of complications should result in increased optimism for diabetics.

## Conclusion

Several suggestions for future research were mentioned in the previous section. To summarize, five studies were suggested. First, how diabetics view and allow the stressors of being diabetic to contribute to their adjustment needs to be explored. Second, the results of recent studies relaying the significant improvements in care and control that reduce the risk of long-term complications and diminish the chronic hindrances of diabetes need to be advocated to increase optimism. Third, future research needs to look at ways of increasing the use of approach coping tactics. Finally, the role of stressors based on the day-to-day tasks involved in being diabetic need to be explored in more depth including how these stressors can be perceived as less limiting, how the use of avoidance coping tactics can be limited and the use of approach coping tactics can be increased.

The results of this study emphasize the need for relevant approach coping techniques that diabetics can implement in an effort to increase adjustment, optimism, and frequency of blood glucose monitoring. As further research is conducted and those applications are applied we can hope to see continued improvements in how diabetics cope with their illness resulting in an improved quality of life.

## TABLES

**Table 1**  
**Characteristics of Scales in Study: Formats, Distributions,**  
**and Internal Consistencies**

Scale	# of Items	Choice Points	Possible Range	Mean	Standard Deviation	Alpha
Approach Coping <sup>a</sup>	24	4	24 - 96	58.1	11.66	.84
Avoidance Coping <sup>a</sup>	24	4	24 - 96	53.79	12.30	.82
Diabetic Adjustment <sup>b</sup>	42	5	42 - 210	165.27	19.07	.86
Life Orientation <sup>c</sup>	13	5	9 - 45	28.9	6.2	.80
Stressors <sup>d</sup>	10	5	10 - 50	24.84	7.90	.83

a = Two subscales from the Coping Response Inventory (Ebata & Moos, 1991)

b = Four subscales from the Diabetic Adjustment Scale (Sullivan, 1979a, 1979b)

c = Life Orientation Test (Scheier & Carver, 1985)

d = Ten items from Diabetes Care Profile (Michigan Diabetes Research and Training Center, 1987)

Table 2

Correlations, Means, and Standard Deviations for Variables in Study

	1	2	3	4	5	6	7	8	9	10
1. Age										
2. Duration	34									
3. Gender <sup>a</sup>	-06	-01								
4. Parent Education	-11	-05	-15							
5. Stressors	16	02	-13	-16						
6. Coping Approach	13	10	08	02	01					
7. Coping Avoidance	09	16	09	-04	33	58				
8. Monitoring <sup>b</sup>	-02	18	-06	01	10	17	13			
9. Optimism	-18	-12	-06	17	-48	19	-15	23		
10. Adjustment	-12	-18	-01	15	-62	-06	-51	07	59	
Mean	14.84	5.31	1.89	8.71	24.84	58.14	53.79	3.05	28.90	165.27
Standard Deviation	1.78	3.50	.32	2.49	7.90	11.66	12.30	1.32	6.16	19.07

Notes. Correlation decimals are deleted for readability. Correlations are significant above .17 ( $p < .05$ ) and above .32, ( $p < .001$ ).

<sup>a</sup>Females coded = 2, Males coded = 1.

<sup>b</sup>Monitoring blood sugar times per day (range = 0 - 7).

Table 3

Summary of Hierarchical Regression Analysis for Background Variables Predicting Adjustment (N=99)

Variables	<u>B</u>	<u>SE B</u>	<u>β</u>
<b>Step 1: Background Variables</b>			
Age	-.56	1.19	-.05
Duration	-.83	.60	-.15
Gender <sup>a</sup>	.39	6.32	.01
Parent Education	1.09	.81	.14
Step 2 Stressors	-1.50	.20	-.62***
Step 3 Coping Approach	.37	.15	.27*
Coping Avoidance	-.72	.16	-.46***

Note. Female = 2, Male = 1

$R^2 = .24$  for Step 1;  $\Delta R^2 = .36$ ,  $p < .001$ , for Step 2;  $\Delta R^2 = .00$  for Step 3 ( $ps < .05$ ).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 4

Summary of Hierarchical Regression Analysis for Background Variables Predicting Optimism (N=99)

Variables	<u>B</u>	<u>SE B</u>	<u>β</u>
<b>Step 1: Background Variables</b>			
Age	-.49	.38	-.14
Duration	-.12	.19	-.07
Gender <sup>a</sup>	-.89	2.04	-.05
Parent Education	.35	.26	.14
Step 2 Stressors	-.37	.07	-.47***
Step 3 Coping Approach	.17	.06	.33**
Coping Avoidance	-.08	.06	-.16

Note. Female = 2, Male = 1

$R^2 = .06$  for Step 1;  $\Delta R^2 = .21$ ,  $p < .001$ , for Step 2;  $\Delta R^2 = .03$  for Step 3 ( $ps < .05$ ).

\* $p < .05$ .    \*\* $p < .01$ .    \*\*\* $p < .001$ .

Table 5

Summary of Regression Analysis for Background Variables  
Predicting Monitoring (N=99)

Variables	<u>B</u>	<u>SE B</u>	<u>β</u>
Age	-.06	.08	-.08
Duration	.10	.04	.25*
Gender <sup>a</sup>	-.04	.43	-.01
Parent Education	.01	.05	.01
Stressors	.05	.02	.33*
Coping Approach	.00	.02	.04
Coping Avoidance	.01	.02	.11
Optimism	.07	.03	.31*
Adjustment	.01	.01	.19

Note. Female = 2, Male = 1

R<sup>2</sup> = .19 (ps < .05).

\*p < .05.

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## APPENDICES

## APPENDIX A Literature Review

### Diabetes: Symptoms and Management

Insulin Dependent Diabetes Mellitus (IDDM) is an irreversible disorder of the insulin-producing beta cells of the islets of Langerhans of the pancreas. IDDM requires insulin injections to sustain life (Ahmed & Cunningham, 1985). Insulin is the hormone that acts at the cell membranes to promote synthesis of glucose, amino acids, and potassium. This action is crucial for efficient synthesis and storage of energy from carbohydrates, proteins, and fats (May, 1991; Surwit, Ross, & Feinglos, 1991).

IDDM affects more than one million people in the United States, according to the National Institute of Diabetes and Digestive Kidney Disease ("Living Well," 1993). It develops most often in children and young adults (Bode et al. 1993). IDDM is the second most common chronic disease, after cancer, in children in the United States ("National Institutes of Health Launches Study To Prevent Diabetes," 1994).

IDDM differs from Non-Insulin-Dependent Diabetes Mellitus (NIDDM). The latter is more common, affecting about 13 million Americans (Bode et al. 1993). The majority of these NIDDM individuals are obese, middle-aged adults with a family history of diabetes. With NIDDM, control can usually be achieved by increasing physical activity, reducing body

weight, and careful attention to diet. The focus of this paper, however, is IDDM, hereafter referred to as diabetes for ease of readability.

Diabetes is a chronic and incurable disease that can be managed using a rigorous self-care regimen involving numerous daily behavioral tasks related to diet and exercise, which must be performed for the duration of the patient's life (Cox & Gonder-Frederick, 1992). This means a lifelong commitment to complex, expensive, and often painful procedures (Johnson, 1985). Unlike other diseases, the responsibility for the day-to-day management of diabetes is transferred from the physician to the patient. In fact, the patient assumes primary responsibility for over 95% of their own daily care which involves implementing a semi-rigid schedule requiring a major adjustment in life style (Anderson et al. 1993; Eiser, 1985; Harris, Linn, & Pollack, 1984; Wilkinson, 1987).

Control of diabetes requires that a balance exist between insulin dose, caloric intake, and exercise (Gwinn, Olex, Whitman, & Crawford, 1984), as well as constant monitoring (Ahmed & Cunningham, 1985). This balance is also influenced by stress, illness, and adherence to regime as well as emotions including guilt, helplessness, fear, and hopelessness. While the disease itself is not visible (Orr, 1986), the ways of

controlling it are; including insulin injections, blood glucose monitoring, diet, and exercise.

Onset symptoms of diabetes include fatigue and weakness, excessive thirst (polydipsia), excessive hunger (polyphagia), frequent urination (polyuria), and weight loss despite excessive eating. Because the pancreas is not producing insulin, the body is unable to utilize the available blood sugar for energy (Eiser, 1985; Johnson, 1988). The body is then forced to break down fat for energy. By-products of this breakdown are ketones (acids and toxins) which are then released into the urine and bloodstream. Large amounts of ketones in the blood cause ketoacidosis (DKA), which is life threatening. Symptoms of DKA include: increased thirst and urination, nausea, vomiting and/or stomach pain, difficulty breathing, acid or fruity smell on the breath, flushing, dehydration, fatigue, and loss of consciousness. Even though individuals with DKA are eating, they are literally starving to death. The nutrients consumed are unable to reach the body's individual cells without insulin. Treatment of DKA is insulin therapy (Bode et al., 1993). Insulin works as a key to allow glucose to enter the individual cells, resulting in energy production and use.

The goal of treatment (insulin injections) is to keep blood glucose levels as close to normal as possible. This is not easy to achieve since exogenous insulin replacement does

not mimic normal pancreatic function. However, the recent development of home blood glucose testing and the glycosylated hemoglobin (HbA1C) test provide the patient with useful information that can be used to maintain near-normal blood glucose levels. Home blood glucose testing; which involves finger pricking to obtain a drop of blood, accurate timing, and an understanding of how to interpret the result; provides the diabetic with immediate information on the current blood glucose level that can be used to estimate the amount of insulin needed at a particular time. The HbA1C test is a measure of the average blood glucose level over the preceding three months (May, 1991), and indicates the average level of control achieved based on the current daily regimen.

In attempting to maintain blood glucose levels within a narrow range of normal, two extremes, hyperglycemia or hypoglycemia, can occur (Johnson, 1988). Hyperglycemia (excessively high blood glucose) occurs when the individual has too little insulin; too much food or insufficient exercise for the available insulin supply; more stress than usual; or an infection, illness, or injury (Bode et al., 1993). This usually occurs gradually, but, depending on the cause can occur quite rapidly as well. Symptoms of hyperglycemia include: fatigue, dry mouth and skin, increased thirst and hunger, blurry vision, unexplained weight loss, and increased urination

(Bode et al., 1993). Treatment for hyperglycemia involves more frequent blood glucose monitoring and appropriate insulin dosages, and determining the cause of the elevated blood glucose levels. Prompt treatment is very important. Untreated or unresolved hyperglycemia results in ketoacidosis. Hypoglycemia (excessively low blood glucose) occurs when the individual has too much insulin, too little food, or too much exercise for the available insulin supply (Johnson, 1988). Hypoglycemia, also called an insulin reaction, usually occurs relatively quickly and is generally easy to detect and treat. Signs of hypoglycemia include: slurred speech, headache, tingling lips, sweating (cool), rapid heartbeat, confusion and disorientation, weakness, hunger, nervousness, and tremors (Bode et al., 1993). When diabetics experience any of these symptoms they should check their blood glucose level to verify that it is low, and then treat the reaction with a rapid acting glucose source. Untreated hypoglycemia will result in a coma or death.

Illness, infection, injury, and stress can affect blood glucose levels. When diabetics are ill or have an infection or injury, their need for insulin increases even if less food is being eaten. Stress can interfere with metabolic control in two ways. It can directly affect control by causing the body to release hormones that counteract the effects of insulin, such as epinephrine, cortisol, catecholamines and glucagon.

Stress can also indirectly affect control by disrupting regimen adherence (Frenzel et al., 1988; Jacobson & Leibovich, 1984; Johnson, 1982, 1988; Johnson & Rosenbloom, 1982; May, 1991).

Ingersol, Orr, Vance, and Golden (1992) found that diabetics are frequently told that with proper maintenance of their regimen of diet, exercise, and insulin they will be able to live a relatively normal life. However, adherence to diabetic regimen is not easy. It is contingent upon adequate understanding of the disease plus the ability to make complex decisions based on multiple variables. Adherence is not an easy concept to measure. Johnson, Silverstein, Rosenbloom, Carter, and Cunningham (1986) conducted a study consisting of the following 13 measures of adherence: injection regularity, injection interval, injection-meal timing, regularity of injection-meal timing, calories consumed, percentage of calories from fat, percentage of calories from carbohydrates, concentrated sweets, eating frequency, exercise frequency, exercise duration, exercise type, and glucose testing frequency. They found that adherence in one area was not predictive of adherence in another area. Using the same adherence measures Kutter, Delamater and Santiago (1990) found that regimen adherence is associated with poor metabolic control.

In addition to the day-to-day responsibility of managing diabetes, individuals with diabetes are also plagued by the constant threat of long term debilitating and life threatening complications. Possible complications include kidney failure, necessitating dialysis or a kidney transplant; cardiovascular changes resulting in heart disease, a stroke, or requiring amputation of a limb; retinopathy, which may lead to blindness; and neuropathy as a result of nerve damage (Ahmed & Cunningham, 1985; Hanson et al., 1989; Krall & Beaser, 1989; Lundman, Asplund & Norburg, 1990). Diabetics are twice as likely to have cardiovascular changes, have a 5 times greater prevalence of amputation, and are 17 to 25 times more likely to suffer renal failure or blindness than non-diabetics (Johnson, 1988). Diabetes is the third leading cause of death by disease and the leading cause of new cases of kidney disease, blindness, and amputation (Bode et al., 1993).

### Coping

The ability to cope with diabetes determines whether the disease becomes an overwhelming burden in an already difficult life, or a challenging and time consuming task that can be taken in stride.

Sargent (1985) found that diabetics are presented with several emotional, cognitive, and behavioral challenges. Emotional challenges include potential for guilt and blame as well as a decrease in self esteem, and the possibility for an

increase in dependency. Cognitive challenges include understanding the illness, the symptoms, and the treatments, and the learning of new routines necessary to control the disease. Behavioral challenges include: integrating treatment tasks into existing behavior routines of the family, development of effective relationships with health care professionals, and enacting the necessary responses to medical emergencies. Adjustment depends on how the family meets and handles these challenges. Improved emotional well-being contributes to improved blood glucose levels both directly, by reducing stress, and indirectly, by improving self care (Rubin et al., 1990).

Ebata and Moos (1991, 1994) use an approach-avoidance model to organize coping responses according to their focus. Approach-oriented strategies are directed towards the stressor and include cognitive attempts to understand or alter the ways of thinking about the stressor and behavioral attempts to resolve the stressor by dealing directly with it or its consequences. Avoidance-oriented strategies are directed away from the stressor and include cognitive attempts to deny or minimize the stressor and behavioral attempts to withdraw or avoid the stressor. With avoidance, emotion can be relieved by expressing one's emotions and seeking alternative sources of pleasure. Denial is a common coping mechanism used by everyone. Encouraging diabetics

to participate in as many normal activities as possible is a form of healthy denial that improves coping (Papatheodorou, 1985). Individuals may cope with their diabetes using avoidance coping skills, however, the reality of living with diabetes, suggests that behavioral approach coping is essential for survival. This is understandable given the number of self-care behaviors related to diabetes control.

### Stressors

Several researchers have found that stressors are an important component of coping. Pearlin and Schooler (1982) refer to coping as the things people do as a defense against threats of harm by life-strains. They regard coping as inseparable from the life-strains the individual experiences. To be able to understand coping and understand its effectiveness, it is, therefore, necessary to analyze it in the context of the stressors with which people have to live with. Tietz and Vidmar (1972) found that in individuals with IDDM there are emotional patterns created by stressors with which the individual must cope with permanently. How strongly an individual is affected by stressors often mediates how a person is able to cope. In research conducted by Altshuler and Ruble (1989) the distinction between controllable and uncontrollable stressors indicates the type of coping used to deal with the problem. Stressors that are considered to be controllable tend to be addressed using approach coping

strategies. Stressors considered to be uncontrollable tend to be coped with by using avoidance strategies. Given these general guidelines they also found that avoidance may not always be an effective coping strategy. As a matter of fact, in certain situations and for certain people, relying on avoidance coping may have detrimental effects.

### Adjustment

Schnatz (1982) has identified six typical stages found in adjustment to chronic diseases. The first stage is disbelief and denial. In the second stage the person begins to develop an awareness of the disease. As awareness increases, the third stage, reorganization begins to take place. During the first three stages the person gradually allows more information in and begins to make sense of this information, leading to the fourth stage, which is resolution. With resolution and the fifth stage, identity change, the person begins incorporating control of the disease into their life-style. This leads to the sixth stage which is successful adjustment.

Anderson and Genthner (1990) have found that successful adjustment to chronic diseases like diabetes is enhanced when patients are able to accept personal responsibility for having and treating their diabetes. Five levels of personal responsibility were found. At level 1, diabetics take no responsibility for managing their disease.

They are overwhelmed by life and rarely accept the consequences of their actions. At level 2 they depersonalize their approach to diabetes. They begin to take some personal responsibility by becoming angry and using this anger to fight back. Individuals at level 3 begin to verbalize some responsibility for themselves; for their feelings, thoughts, and self-care. Personal growth often occurs at this level and energy is used in a more productive manner. At level 4 people rarely blame others for their circumstances and seldom dwell on the negative aspects of diabetes. Level 5 is achieved when patients accept total responsibility for their lives. They acknowledge diabetes as a fact of life and do not waste energy resisting the disease or the self-care it demands. Diabetics at this level are not tormented by doubt. If mistakes are made they use the information to redirect future behavior and they ask for help when necessary, but they take responsibility for implementing the solution. Jacobson et al. (1990) found that diabetics with higher initial psychological adjustment and coping mechanisms adhered better to diabetic regimen in a four-year follow up. This indicates that patients with the most adherence problems initially remain the most problematic over time.

### Optimism

Being positive and optimistic about the future is an important aspect of coping with diabetes. This is especially

true if the diabetic is relatively young. The person should be encouraged to set goals and anticipate achieving them (Drash & Berlin, 1985). In research done by Carver and Scheier (1985) optimism was found to affect expectancies of being able to cope successfully. Optimistic people believe that problems they confront can be overcome. Benefits to having diabetes have been observed in individuals that are more optimistic and positive. These include: an enriched perspective on life, emotional growth, healthier lifestyle, and relief that the problem wasn't worse (Affleck, Allen, Tennen, McGrade & Ratzen, 1985; Lundman et al., 1990). Similarly, when personal growth (Hauser et al., 1989), independence (Johnson, 1988), participation in social and recreational activities, organization, and achievement (Hauser, Vieyra, Jacobson & Wertlieb, 1985) are emphasized, diabetic adjustment is better.

### Blood Glucose Monitoring

Daily injections of insulin are necessary for the survival of people with diabetes. Maintenance of blood glucose levels in an acceptable range are complicated by the variation in insulin needs depending on nutrition, exercise, health or illness, and stress (Johnson & Rosenbloom, 1982). Consequently the diabetic is presented with opportunities to exert control over the disease through the use of blood glucose monitoring. To maintain blood glucose levels that are as close to normal as

possible the patient's cooperation must be obtained. Home blood glucose testing is a complex skill involving finger pricking to obtain a drop of blood, accurate timing, and an understanding of how to interpret the result (May, 1991). This test result provides the diabetic with immediate information on the current blood glucose level that can be used to estimate the amount of insulin needed at a particular time. However, this knowledge must be behaviorally acted on in order to be beneficial. Blood glucose monitoring provides an extremely accurate indicator of control and is especially useful because the individual is directly involved in the specific details of their diabetic treatment. Blood glucose monitoring provides patients with a sense of pride in their ability to cognitively interpret the results and behaviorally engage in a physical act to alter the blood glucose if necessary. When an individual has the possibility for a course of action in controlling their diabetes they are more likely to perform the multiple daily behaviors that result in good control. Diabetes presents an unending effort to achieve and continuously maintain good control.

### Age

Adolescents of varying ages are thought to adjust differently to their diabetes. A study done by Eiser, Havermans, Pancer, and Eiser (1992) found that adjustment in children with chronic illnesses was rated as poorer with

increasing age on four of the six subscales they administered. Previous research found that adolescents are more knowledgeable about diabetes (Johnson et al., 1982) and are more responsible for the management of their diabetes (Allen et al., 1983), however, they are less compliant than younger children.

### Duration

Duration of diabetes affects compliance with daily regimens. Among children of the same age, those with longer duration of diabetes take greater responsibility for their health management (Allen, Tennen, McGrade, Affleck & Ratzen, 1983; Jacobson et al., 1990). This may be due to the greater time they have had to learn procedures and incorporate treatments into a daily routine. Adolescents appear to be intellectually better prepared to understand treatment procedures, but actual regimen adherence is often more difficult than for younger children when both have had the disease for equal durations (Allen, Tennen, McGrade, Affleck & Ratzen, 1983; Jacobson et al., 1990). In another study, using 151 diabetic adolescents, duration was not significantly related to any measure of diabetes knowledge (Johnson et al., 1982). This finding suggests that although duration was not related to diabetes knowledge it may be related to other aspects of diabetes.

### Gender

In many studies gender is an independent variable that may affect the outcomes being measured. In a sample of children with chronic illnesses, females were found to be better adjusted than males in terms of peer relations and work (Eiser, Havermans, Pancer, and Eiser, 1992). Conversely, another study found that gender difference in coping patterns were not significant even though there were a few differences (Folkman, Lazarus, Pimley, & Novacek, 1987).

### Parental Education

Several researchers (Dolger & Seeman, 1985; Hauser & Solomon, 1985; Johnson & Rosenbloom, 1982) found that parents of children with diabetes sometimes react to the illness in inappropriate ways. One explanation for this behavior is a lack of education. Four types of inappropriate parental behaviors have been identified. One type of parent is overprotective and over anxious. This is caused by the parent's sense of guilt, or the desire to "make it up" to the child for having diabetes. Another type is compulsive, controlling and preoccupied with perfection. This type of parent expects the child to control circumstances beyond their ability. A third type of parent is overindulgent and over permissive. By feeling sorry for the child, who's life is so restrictive, they undermine good control by not following the child's prescribed treatment. A fourth type feels

overwhelmed by the demands that good control puts on them so they react with indifference, insensitivity and hostility.

Individuals adjust best in families that are supportive and incorporate the dietary and exercise needs of the diabetic into the lifestyle habits of the entire family (Johnson, 1982; Sargent, 1985). The level of parental education may also help explain incorporation of diabetes care into family life.

## APPENDIX B

### Cover Letter/Consent Form for Parents

Date

Dear Parent or Parents,

More than one million children and young adults in the United States are affected by Insulin Dependent Diabetes Mellitus (IDDM). As you know, living with diabetes is a challenge that requires adjustment and coping skills to manage all the daily tasks necessary to keep your child's diabetes in control.

Your child is one of a small number of diabetics being asked to share how they cope with being diabetic. Your child's name was obtained from the Making Friends or Do Write column of the (month, year) issue of Diabetic Forecast Magazine. In a few days your child will receive a packet containing a questionnaire, another consent form, and a self-addressed, stamped envelope. It is important that each questionnaire be completed and returned.

Like your child, I am an insulin dependent diabetic. I am 34 years old and was diagnosed with diabetes when I was 10 years old. At that time home blood glucose testing didn't exist so I had to check my glucose level by testing my urine. Boy, was I glad when home blood glucose testing became available. Luckily for me, following my diet plan was not very difficult. I started out giving myself two shots in the morning, one of regular insulin and one of NPH insulin because no one told me I could mix the two insulin's together. For many years, once I discovered the insulin could be mixed, I gave myself one shot a day, and eventually started on two shots a day. About three years ago I decided to try an insulin pump.

Being on the pump gives me the freedom to have a flexible schedule and still be able to maintain good control.

Despite maintaining relatively good control I have developed some complications. I have diabetic retinopathy that has been treated with laser surgery and my vision has now returned to 20/20 (with my glasses on). I also have kidney disease that had been getting worse for several years. Eight months ago I had to start on dialysis but was able to receive a kidney transplant shortly after that. My Mom was my donor and I am doing great.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we can check your child's name off the mailing list when the questionnaire is returned. Your child's name will never be placed on the questionnaire.

For your child to participate in this study they will need to complete the questionnaire booklet and sign the participant consent form and return these items as well as the parents consent form in the self-addressed, stamped envelope. The results of this research will be made available to individuals or organizations doing research on diabetics and all interested participants. You may receive a summary of the results by writing "Summary of results requested" on the back of the return envelope and printing your name and address below it. Please do not put this information on the questionnaire itself.

The Virginia Polytechnic Institute and State University Human Subjects Research Committee and Institutional Review Board have approved this project, however, your participation is strictly voluntary and you are free to withdraw from the study at any time. Questions about this project should be directed to the principle investigator: Jami Pond, (703) 951-5132; Dr.

Mark Benson, (703) 231-5720; or Dr. Ernest Stout, (703) 231-6077.

Thank you for your assistance.

Sincerely,

Jami Pond  
Project Coordinator

Please tear off the bottom portion of this page and return it with your child's completed questionnaire

I have read and understand the cover letter/consent form. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for my child to participation in this study.

Name of

child: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Signature of parent or guardian: \_\_\_\_\_

Signature of participant: \_\_\_\_\_

## APPENDIX C

### Cover Letter/Consent Form for Participants

Date

Name

Address

City, State Zip

Dear Name,

I got your name from Diabetes Forecast Magazine. I am writing to you because you are interested in corresponding with other diabetics and because I need your help.

Like you, I am an insulin dependent diabetic. I am 34 years old and was diagnosed with diabetes when I was 10 years old. At that time home blood glucose testing didn't exist so I had to check my glucose level by testing my urine. Boy, was I glad when home blood glucose testing became available. Luckily for me, following my diet plan was not very difficult. I started out giving myself two shots in the morning, one of regular insulin and one of NPH insulin because no one told me I could mix the two insulin's together. For many years, once I discovered the insulin could be mixed, I gave myself one shot a day, and eventually started on two shots a day. About three years ago I decided to try an insulin pump. Being on the pump gives me the freedom to have a flexible schedule and still be able to maintain good control.

Despite maintaining relatively good control I have developed some complications. I have diabetic retinopathy that has been treated with laser surgery and my vision has now returned to 20/20 (with my glasses on). I also have kidney disease that had been getting worse for several years. Eight

months ago I had to start on dialysis but was able to receive a kidney transplant shortly after that. My Mom was my donor and I am doing great.

The second reason for writing is to ask you to fill out a questionnaire so I can complete the research I am doing for my Master's degree. It should only take about 30 minutes and the results will be used to help other diabetics adjust and cope with their disease. It is important that each questionnaire be completed and returned.

To participate in the study, please sign the consent form, fill out the questionnaire and mail it back to me in the self-addressed, stamped envelope with the parent consent form. You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we can check your name off the mailing list when the questionnaire is returned. Your name will never be placed on the questionnaire. The results of this research will be made available to individuals or organizations doing research on diabetics and all interested participants. You may receive a summary of the results by writing "Summary of results requested" on the back of the return envelope and printing your name and address below it. Please do not put this information on the questionnaire itself.

If you want to continue to correspond with me please write me a letter and mail it to me separate from the questionnaire.

The Virginia Polytechnic Institute and State University Human Subjects Research Committee and Institutional Review Board have approved this project. However, your participation is strictly voluntary and you are free to withdraw from the study at any time. Questions about this project should be directed to the principle investigator: Jami Pond, (703) 951-5132; Dr.

Mark Benson, (703) 231-5720; or Dr. Ernest Stout, (703) 231-6077.

Thank you for your assistance.

Sincerely,

Jami Pond

Please tear off the bottom portion of this page and return it with your completed questionnaire

I have read and understand the cover letter/consent form. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this study.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Signature of participant: \_\_\_\_\_

Signature of parent or guardian: \_\_\_\_\_

APPENDIX D  
Measurement

**Your  
Opinions  
and  
Views  
on  
Diabetes**

## Coping Response Inventory

Next, please think about the most important problem related to your diabetes that you have experienced in the last 12 months. Describe the problem in the space below. Be as specific as you can.

DESCRIBE THE PROBLEM OR SITUATION \_\_\_\_\_

Please think about the problem you described and circle the correct response to indicate what you did to deal with the problem.

<u>DID YOU:</u>	No	Yes, once or twice	Yes, some- times	Yes, fairly often
1. <sup>a</sup> think of different ways to deal with the problem? . . . . .	1	2	3	4
2. <sup>a</sup> tell yourself things to feel better? . . . . .	1	2	3	4
3. <sup>a</sup> talk with a parent or another family member about the problem? . . . . .	1	2	3	4
4. <sup>a</sup> decide on one way to deal with the problem and do it? . . . . .	1	2	3	4
5. <sup>b</sup> try to forget the whole thing? . . . . .	1	2	3	4
6. <sup>b</sup> feel that time would make a difference? . . . . .	1	2	3	4
7. <sup>b</sup> get involved in new activities? . . . . .	1	2	3	4
8. <sup>b</sup> take it out on other people when you felt angry or sad? . . . . .	1	2	3	4
9. <sup>a</sup> try to step back from the problem and think about it? . . . . .	1	2	3	4
10. <sup>a</sup> tell yourself that things could be worse? . . . . .	1	2	3	4
11. <sup>a</sup> talk with a friend about the problem? . . . . .	1	2	3	4

<u>DID YOU:</u>		No	Yes, once or twice	Yes, some- times	Yes, fairly often
12. <sup>a</sup>	know what had to be done and try hard to make things work? . . . .	1	2	3	4
13. <sup>b</sup>	try not to think about the problem? . . . . .	1	2	3	4
14. <sup>b</sup>	realize that you have no control over the problem? . . . . .	1	2	3	4
15. <sup>b</sup>	try to make new friends? . . . . .	1	2	3	4
16. <sup>b</sup>	take a chance and do something risky? . . . . .	1	2	3	4
17. <sup>a</sup>	go over in your mind what you would say or do? . . . . .	1	2	3	4
18. <sup>a</sup>	try to see the good side of the situation? . . . . .	1	2	3	4
19. <sup>a</sup>	talk with an adult like a teacher, coach, counselor, clergyman, or doctor? . . . . .	1	2	3	4
20. <sup>a</sup>	decide what you wanted and try to get it? . . . . .	1	2	3	4
21. <sup>b</sup>	daydream or imagine things being better than they were? . . . . .	1	2	3	4
22. <sup>b</sup>	think that the outcome would be decided by fate? . . . . .	1	2	3	4
23. <sup>b</sup>	begin to read more often for enjoyment? . . . . .	1	2	3	4
24. <sup>b</sup>	yell or shout to let off steam? . . .	1	2	3	4
25. <sup>a</sup>	think about how things might turn out? . . . . .	1	2	3	4
26. <sup>a</sup>	keep thinking about how you were better off than other people with the same problems? .	1	2	3	4

<u>DID YOU:</u>		No	Yes, once or twice	Yes, some- times	Yes, fairly often
27.a	look for help from other kids or groups with the same type of problem? . . . . .	1	2	3	4
28.a	try at least two different ways to solve the problem? . . . . .	1	2	3	4
29.b	put off thinking about the problem? . . . . .	1	2	3	4
30.b	accept the problem because nothing could be done to change it? . . . . .	1	2	3	4
31.b	begin to spend more time in fun activities, like sports, parties, and going shopping? . . . .	1	2	3	4
32.b	cry to let your feelings out? . . . .	1	2	3	4
33.a	try to make sense out of why this problem happened to you? . . .	1	2	3	4
34.a	try to tell yourself that things would get better? . . . . .	1	2	3	4
35.a	ask a friend to help you solve the problem? . . . . .	1	2	3	4
36.a	try to do more things on your own? . . . . .	1	2	3	4
37.b	wish that the problem would go away or somehow be over with? . .	1	2	3	4
38.b	expect the worst possible outcome? . . . . .	1	2	3	4
39.b	try to keep busy with school or other things to help you cope? . . .	1	2	3	4
40.b	do something that you didn't think would work, but at least you were doing something? . . . . .	1	2	3	4

<u>DID YOU:</u>	No	Yes, once or twice	Yes, some- times	Yes, fairly often
41. <sup>a</sup> think about the new hardships that would be placed on you? . . . . .	1	2	3	4
42. <sup>a</sup> think about how this situation could change your life for the better? . . . . .	1	2	3	4
43. <sup>a</sup> ask for sympathy and under- standing from someone? . . . . .	1	2	3	4
44. <sup>a</sup> take things a day at a time, one step at a time? . . . . .	1	2	3	4
45. <sup>b</sup> try to deny how serious the problem really was? . . . . .	1	2	3	4
46. <sup>b</sup> lose hope that things would ever be the same? . . . . .	1	2	3	4
47. <sup>b</sup> find new ways to enjoy life? . . . . .	1	2	3	4
48. <sup>b</sup> listen to music as a way to cope?	1	2	3	4

Note. a = approach coping  
b = avoidance coping

## Diabetes Adjustment Scale

These questions ask about your adjustment to diabetes. Please circle the answer that best indicates how you feel.

	Never	Once in a While	Some times	Most of the Time	Always
1. I control my diabetes myself. . . . .	1	2	3	4	5
2. <sup>a</sup> I have too many dents and bumps on my body. . . . .	1	2	3	4	5
3. <sup>a</sup> Some people tease me about having diabetes. . . . .	1	2	3	4	5
4. <sup>a</sup> I wish I were more independent. . . . .	1	2	3	4	5
5. I tell my friends at home that I have diabetes. . . . .	1	2	3	4	5
6. <sup>a</sup> I think my parents are more concerned about my diabetes than about me. . . . .	1	2	3	4	5
7. <sup>a</sup> I get embarrassed when I have to refuse food. . . . .	1	2	3	4	5
8. <sup>a</sup> I wish I could run away. . . . .	1	2	3	4	5
9. <sup>a</sup> My friends at home deliberately tempt me to eat foods that I shouldn't eat. . . . .	1	2	3	4	5
10. <sup>a</sup> My parents expect too much of me. . . . .	1	2	3	4	5

	Never	Once in a While	Some times	Most of the Time	Always
11. <sup>a</sup> I would rather eat something I shouldn't than tell people that I have diabetes. . . . .	1	2	3	4	5
12. <sup>a</sup> I would rather have my parents control my diabetes for me. . . . .	1	2	3	4	5
13. I enjoy eating with my friends. . . . .	1	2	3	4	5
14. <sup>a</sup> I feel like no one pays attention to me at home. . . .	1	2	3	4	5
15. <sup>a</sup> I think people with diabetes shouldn't get married. . . . .	1	2	3	4	5
16. <sup>a</sup> My parents act like diabetes is THEIR disease, not MINE. . .	1	2	3	4	5
17. My nondiabetic friends understand me. . . . .	1	2	3	4	5
18. <sup>a</sup> My parents embarrass me. . .	1	2	3	4	5
19. <sup>a</sup> I get mad at myself when I have insulin reactions. . . .	1	2	3	4	5
20. <sup>a</sup> My mother is too careful and protective of me. . . . .	1	2	3	4	5
21. <sup>a</sup> My friends at home tease me about my diabetes. . . . .	1	2	3	4	5
22. <sup>a</sup> I feel like my parents punish me too much. . . . .	1	2	3	4	5

	Never	Once in a While	Some times	Most of the Time	Always
23. <sup>a</sup> I would rather not tell people when I'm having a reaction. . . . .	1	2	3	4	5
24. <sup>a</sup> My father is too careful and protective of me. . . . .	1	2	3	4	5
25. <sup>a</sup> I have too many insulin reactions. . . . .	1	2	3	4	5
26. <sup>a</sup> I think my non-diabetic friends would like me better if I didn't have diabetes either. . . . .	1	2	3	4	5
27. <sup>a</sup> People who have diabetes get too many responsibilities before they are ready for them. . . . .	1	2	3	4	5
28. <sup>a</sup> It's harder to make friends when you have diabetes. . . .	1	2	3	4	5
29. <sup>a</sup> I fake my urine test reports.	1	2	3	4	5
30. I take part in figuring out my own meals. . . . .	1	2	3	4	5
31. I feel like I'm 'in control' as far as my diabetes is concerned. . . . .	1	2	3	4	5
32. <sup>a</sup> I wish I had more friends. .	1	2	3	4	5
33. <sup>a</sup> I get angry at my mother. .	1	2	3	4	5
34. <sup>a</sup> I feel like not taking my insulin. . . . .	1	2	3	4	5

	Never	Once in a While	Some times	Most of the Time	Always
35. <sup>a</sup> I give myself my own insulin. . . . .	1	2	3	4	5
36. <sup>a</sup> I'm afraid I'll get very sick before I'm very old. . . . .	1	2	3	4	5
37. <sup>a</sup> I play with kids who are younger than me. . . . .	1	2	3	4	5
38. <sup>a</sup> I get angry at my father. . . . .	1	2	3	4	5
39. <sup>a</sup> When I'm angry, I forget to take my insulin. . . . .	1	2	3	4	5
40. I tell people when I think I'm having a reaction. . . . .	1	2	3	4	5
41. <sup>a</sup> Other kids pick on me. . . . .	1	2	3	4	5
42. <sup>a</sup> When I'm mad, I eat more than usual. . . . .	1	2	3	4	5

**Note.** a = reversed items

## Life Orientation Test

Now, would you please answer the following questions about yourself by circling the number indicating how much you agree with the statement.

		Strongly Disagree				Strongly Agree
1.	In uncertain times, I usually expect the best. . . . .	1	2	3	4	5
2.a	It's easy for me to relax. . . . .	1	2	3	4	5
3.b	If something can go wrong for me it will. . . . .	1	2	3	4	5
4.	I always look on the bright side of things. . . . .	1	2	3	4	5
5.	I'm always optimistic about my future. . . . .	1	2	3	4	5
6.a	I enjoy my friends a lot. . . . .	1	2	3	4	5
7.a	It's important for me to keep busy. . . . .	1	2	3	4	5
8.b	I hardly ever expect things to go my way. . . . .	1	2	3	4	5
9.b	Things never work out the way I want them to. . . . .	1	2	3	4	5
10.a	I don't get upset too easily. . . . .	1	2	3	4	5
11.	I'm a believer in the idea that "every cloud has a silver lining." . . . . .	1	2	3	4	5
12.b	I rarely count on good things happening to me. . . . .	1	2	3	4	5

		<b>Strongly Disagree</b>			<b>Strongly Agree</b>		
<b>13.</b>	<b>Overall, I expect more good things to happen to me than bad. . . . .</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	

**Note.** a = items not scored, distracter items  
b = reverse coded

## Diabetes Care Profile and Diabetes Attitude Survey

Another important aspect of this study is how you feel about your diabetes. Please answer the following questions by indicating how much you agree or disagree with the statement. Circle the best answer.

		Strongly Disagree				Strongly Agree
<b>1.a</b> My diabetes and its treatment keep me from:						
a) meeting school and other responsibilities. . . . .	1	2	3	4	5	
b) going out or traveling as much as I want to. . . . .	1	2	3	4	5	
c) being as active as I want. . . . .	1	2	3	4	5	
d) eating food that I like. . . . .	1	2	3	4	5	
e) eating as much as I want. . . . .	1	2	3	4	5	
f) having good relationships with people. . . . .	1	2	3	4	5	
g) having a schedule I like (eating or sleeping late). . . . .	1	2	3	4	5	
h) spending time with my friends. . . . .	1	2	3	4	5	
i) having enough time alone. . . . .	1	2	3	4	5	
<b>2.a</b> Having diabetes makes my life very difficult. . . . .	1	2	3	4	5	
<b>3.a</b> All things considered, I feel satisfied with my life. . . . .	1	2	3	4	5	
<b>4.a</b> I can do just about anything I set out to do. . . . .	1	2	3	4	5	
<b>5.b</b> Controlling my diabetes should be the most important thing in my life. . . . .	1	2	3	4	5	
<b>6.b</b> My parents should be in charge of controlling my diabetes. . . . .	1	2	3	4	5	

7.a	How would you rate your understanding of diabetes and its treatment? . . . . .	Poor	Good	Excellent
		1	2	3
			4	5

8.b	In general, how serious do you believe your diabetes to be? . . . . .	Very Serious			Not at all Serious
		1	2	3	4
				5	

**Note.** Items 1 and 2 comprised the 10 items for the stressor scale  
 a = Questions from the Diabetes Care Profile  
 b = Questions from the Diabetes Attitude Survey

## Health Locus of Control Scale

First, I'd like to know your opinions about health. Next to each statement please circle the number that most closely agrees with your beliefs. The higher the number the more you agree with the statement.

		Strongly Disagree					Strongly Agree
1. Good health is largely a matter of good fortune. . . . .	1	2	3	4	5	6	
2. Whenever I get sick it is because of something I've done or not done. . . . .	1	2	3	4	5	6	
3. If I take care of myself, I can avoid illness. . . . .	1	2	3	4	5	6	
4. No matter what I do, if I am going to get sick I will get sick. . . . .	1	2	3	4	5	6	
5. Most people do not realize the extent to which their illnesses are controlled by accidental happenings. . . . .	1	2	3	4	5	6	
6. I can only do what my doctor tells me to do. . . . .	1	2	3	4	5	6	
7. There are so many strange diseases around that you can never know how or when you might pick up one. . . . .	1	2	3	4	5	6	
8. When I feel ill, I know it is because I have not been getting the proper exercise or eating right. . . . .	1	2	3	4	5	6	
9. People who never get sick are just plain lucky. . . . .	1	2	3	4	5	6	

	Strongly Disagree					Strongly Agree
10. People's ill health results from their own carelessness. . . . .	1	2	3	4	5	6
11. I am directly responsible for my health. . . . .	1	2	3	4	5	6

**Note.** This scale was not used in analysis due to low reliability and poor factor analysis.

## Diabetes History and Background

Finally, answering these questions will help me understand how your background affects your views of diabetes.

What is your birth date? \_\_\_\_\_  
(Month, Day, Year)

What is the last grade you completed? \_\_\_\_\_

What is your gender? \_\_\_\_\_ Male \_\_\_\_\_ Female

When were you diagnosed with diabetes? \_\_\_\_\_  
(Month, Year)

Which of the following complications of diabetes do you have?

eye problems . . . . .	_____ Yes	_____ No
kidney problems . . . . .	_____ Yes	_____ No
foot problems . . . . .	_____ Yes	_____ No
hardening of the arteries . . . . .	_____ Yes	_____ No
heart disease . . . . .	_____ Yes	_____ No

How many times a day do you inject insulin? \_\_\_\_\_

How many times a day do you check your blood sugar? \_\_\_\_\_

What is your ethnic background? \_\_\_\_\_ White  
\_\_\_\_\_ African-American  
\_\_\_\_\_ Asian  
\_\_\_\_\_ Other

How much schooling has your Mother completed?

\_\_\_\_\_ Less than 8th grade  
\_\_\_\_\_ Some high school  
\_\_\_\_\_ High school graduate  
\_\_\_\_\_ Some college or technical school  
\_\_\_\_\_ College graduate  
\_\_\_\_\_ Some postgraduate education  
\_\_\_\_\_ Masters, Ph.D., M.D., Law degree, etc.

How much schooling has your Father completed?

- Less than 8th grade
- Some high school
- High school graduate
- Some college or technical school
- College graduate
- Some postgraduate education
- Masters, Ph.D., M.D., Law degree, etc.

Any comments you wish to make that you think may help me in future efforts to understand coping and adjustment to diabetes will be greatly appreciated, either here or in a separate letter. \_\_\_\_\_

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Thank you for filling out this questionnaire. The results of this study will help other diabetics like us learn to cope with and adjust to diabetes in a positive way. Thank you for assisting me in this effort.

Jami Pond

## VITA

### **JAMI S. POND**

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Blacksburg, Virginia 24060

(703) 951-5132

Date of Birth - January 12, 1960

### **Education**

Master of Science in Child Development, Spring 1995,  
Virginia Polytechnic Institute and State University,  
Blacksburg, Virginia  
Thesis Title: Stress and Coping Among Adolescent Diabetics  
Grade Point Average - 3.8

Bachelor of Science in Business Administration, Fall 1982  
Concentration: Marketing  
Minor: Psychology  
Colorado State University,  
Fort Collins, Colorado

### **Employment History**

Virginia Tech Child Development Laboratory  
Blacksburg, Virginia

Head Teacher

August 1992 to May 1993

- Planned and implemented developmentally appropriate curriculum for the classroom
- Worked with parents to ensure the continued growth and development of their children
- Supervised undergraduate teaching assistants
- Conducted parent-teacher conferences evaluating their child's social, emotional, cognitive, and physical development

Virginia Council on Child Day Care and Early Childhood  
Programs and Social Services

Blacksburg, Virginia

Researcher

January 1992 to May 1992

- Investigated legal action taken in Virginia pertaining to Child Care issues
- Conducted meetings with child care providers throughout the state
- Determined the training and education needs of Virginia's child care work force.

Virginia Tech Department of Recreational Sports

Blacksburg, Virginia

Fiscal Technician

December 1990 to November 1991

- Constructed budget plan for the department
- Processed payroll
- Secured bids from vendors
- Purchased equipment and supplies
- Processed daily deposit

Carter-Pond Infant and Toddler Center

Seattle, Washington

Owner/Director

March 1986 to July 1990

- Planned and implemented infant and toddler program
- Conducted parent interviews and conferences
- Helped parents cope with parenthood and demanding careers
- Nurtured and cared for twelve infants and toddlers on a daily basis

### **Publications**

Pond, J. S., Peters, M., Kamrath, D., & Rogers, C. S. (1995). Psychosocial challenges for children with insulin dependent diabetes mellitus. The Diabetes Educator, 21(4).

### **Scholarships**

FCD Tuition Scholarship - Spring 1991

FCD Tuition Scholarship - Spring 1992

Century Bank Scholarship - Fall 1978

### **Professional Memberships**

National Association for Education of Young Children

Southeastern Association Curriculum for Children Under Six

Virginia Association for Early Childhood Education

Virginia Tech Association for Early Childhood Education

Graduate Honor System - Judicial Board

FCD Graduate Student Association - Treasurer

### **Conference Presentations**

Pond, J. S. (1993, April). Assessment of gifted children.

Poster presented at Southern Symposium on Child and Family Development, Auburn, Alabama.

Pond, J. S. & Snyder, T. (1992, August). What hope means in the life of a child. Paper presented at the Head Start Training Conference, Blacksburg Virginia.

Pond, J. S., Dodd, A., & Snyder, T. (1992, August).

Developmentally appropriate discipline practices. Paper presented at the Head Start Training Conference, Blacksburg, Virginia.

Pond, J. S. (1992, April). Family influence on ego control in diabetics. Paper presented at Southern Symposium on Child and Family Development, Blacksburg, Virginia.

### **Panel Presentations**

- Adviser/Advisee Communications - February 19, 1993
- Graduate School Options in Family and Child Development - February 17, 1993
- Family and Child Development Graduate Student Orientation for New Students - September 11, 1992
- Everything You Always Wanted to Know About Graduate School and More... - February 5, 1992

*Jami S. Pond*  
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Jami S. Pond