

THE SOCIAL INFLUENCE CONSTRUCT OF THE  
EXPANDED HEALTH BELIEF MODEL HAS  
A ROLE IN THE CARE OF PERSONS  
WITH TYPE 2 DIABETES  
MELLITUS

By

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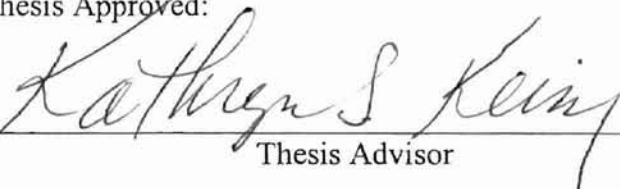
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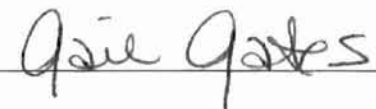
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## CHAPTER I

### INTRODUCTION

Diabetes is a serious disease. Approximately 12 million Americans have diabetes. Ninety percent of patients with diabetes have non-insulin-dependent diabetes or Type 2 diabetes mellitus. The Diabetes Control and Complications Trial demonstrated that improvements in glycemic control can delay the onset and slow the progression of diabetes related chronic complications. Diet and exercise play an important role in achieving this goal (The Diabetes Control and Complications Trial Research Group, 1993).

Medical nutrition therapy (MNT) is an integral part of diabetes management. Meal planning and adherence to diet is often the most difficult self-management behavior for patients. Medical nutrition therapy emphasis for Type 2 diabetes is placed on achieving blood glucose control. Better control can be achieved by making better food choices and spacing meals throughout the day. Exercise, along with other behaviors such as self-monitoring of blood glucose (SMBG), are also important (American Diabetes Association, 2001d).

Patient education is a crucial component of diabetes care. Patients with diabetes deliver 95% of their own care. Therefore, they must acquire the skills necessary to achieve a balance among diet, exercise, and medication (Anderson et al., 1993). One behavior change theory, which shows promise in helping persons with diabetes to change

and follow an appropriate diet, is the Expanded Health Belief Model (EHBM) (Wdowik et al., 1997).

One of the constructs of interest from the EHBM is social influence. Social influence is defined as the recommendations of family or friends, and takes into account the social support provided by loved ones and family (Burns, 1992). There are few diabetes educational programs developed using the EHBM model and very little is known regarding the social influence construct. A qualitative needs assessment built on the Expanded Health Belief Model and the social influence construct needs to be conducted among the Type 2 diabetes population. The objective of the present study was to learn about the role of the social influence construct of the Expanded Health Belief Model on meal planning behaviors in persons with Type 2 diabetes mellitus.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Diabetes Mellitus

Diabetes is on the rise among the United States population. Diabetes is a complex, serious, and costly disease. Diabetes is the 7<sup>th</sup> leading cause of death in the United States (Centers for Disease Control, 1997). It is the sixth leading cause of death by disease. Diabetes is a chronic disease and has no cure (American Diabetes Association, 2000).

There are 15.7 million people in the United States who have diabetes. Approximately 2,200 people are diagnosed each day (American Diabetes Association, 2000). Diabetes can affect nearly all organs when complications occur (Centers for Disease Control, 1997). Diabetes is the leading cause of new cases of blindness in people 20-74 years old. Diabetes is also the leading cause of end-stage renal disease. About 60-70 percent of people with diabetes have some form of nerve damage caused from diabetes. This nerve damage can lead to lower limb amputations. People with diabetes are 2 to 4 times more likely to have heart disease and 2 to 4 more times likely to suffer a stroke than persons without diabetes (American Diabetes Association, 2000).

Diabetes is one of the most costly health problems in the United States. The total economic cost of diabetes in 1997 was estimated to be \$98 billion, which included health care and other costs directly associated with diabetes treatment and the costs of lost

productivity. In 1997, total health expenditures incurred by people with diabetes amounted to \$77.7 billion including health care costs not resulting from diabetes. Direct costs of diabetes represent 5.8 percent of total health care expenditures in the United States. Approximately \$27.5 billion was spent for inpatient hospital care. Diabetes-related hospitalizations totaled 13.9 million days in 1997. The indirect costs due to diabetes accounted for nearly 88 million disability days in 1997. On the average, adults with diabetes between 18-64 years old lost 8.3 days from work as compared with 1.7 days for people without diabetes (American Diabetes Association, 2000).

There are two major types of diabetes. Type 1 is an autoimmune disease in which the body does not produce any insulin, most often occurring in children and young adults. People with Type 1 diabetes must take insulin injections to stay alive. Type 1 diabetes accounts for 5-10 percent of diabetes cases (American Diabetes Association, 2000).

Type 2 diabetes is a metabolic disorder resulting from the body's inability to make enough or properly use insulin. Type 2 diabetes is the most common type accounting for 90-95 percent of diabetes. The incidence of Type 2 is nearing epidemic proportions due to the increasing number of older Americans and a higher rate of obesity and sedentary lifestyles (American Diabetes Association, 2000).

Studies suggest that those who keep their blood glucose values within normal ranges substantially reduce their risk of long-term complications such as retinopathy, nephropathy, and neuropathy (American Diabetes Association, 1995). The Diabetes Complications and Control Trial (DCCT) (1993) examined patients with Type 1 diabetes. A total of 1,441 patients were assigned to a conventional therapy group or intensive therapy group and were followed for a mean of 6.5 years. The results indicated that



intensive therapy of patients with Type 1 diabetes delayed the onset and progression of long-term complications including retinopathy, nephropathy, and neuropathy. The DCCT was the longest and largest prospective study showing that lowering of blood glucose to within normal ranges slows or prevents the development of long-term complications (American Diabetes Association, 2001b).

The United Kingdom Prospective Diabetes Study (UKPDS, 1998) focused on intensive blood glucose control and the risk of long-term complications in Type 2 diabetes. A total of 3,867 newly diagnosed Type 2 diabetes patients were randomly assigned to an intensive or conventional treatment group. Results indicated that intensive blood glucose control decreased the risk of complications such as retinopathy, nephropathy, and possibly neuropathy. The UKPDS provided strong support for aggressive treatment of diabetes to decrease the morbidity and mortality of the disease by decreasing long-term complications (American Diabetes Association, 2001c).

### Treatment of Diabetes Mellitus

Type 2 diabetes treatment includes a balance of diet, exercise, and medication such as insulin or oral hypoglycemic agents (American Diabetes Association, 1997). Individuals must change previous eating habits and make lifestyle changes (Franz et al., 1994).

Medical nutrition therapy (MNT) is an integral part of diabetes management. The primary goal of MNT is maintenance of blood glucose concentrations that are as near

normal as possible with a balance of food, medication, and physical activity.

Achievement of optimal blood lipid levels, normal blood pressure, appropriate energy intake for desirable weight or weight loss, prevention and treatment of acute complications, and improvement of overall health through optimal nutrition are other goals important in Type 2 diabetes (American Diabetes Association, 2001d).

A moderate calorie restriction and a nutritionally adequate meal plan with a reduction in total fat are recommended. Spacing meals is another strategy helpful in diabetes control. The diabetes meal plan should be formulated so that protein intake is 10-20 % of daily energy needs. Less than 10 % of calories should come from saturated fat. The total fat and carbohydrate intake should make up 80-90 % of energy. This division should be individualized based on the particular nutritional needs for each patient (American Diabetes Association, 2001d).

Exercise is another important aspect in diabetes management, especially with Type 2 diabetes. Exercise increases the peripheral utilization of glucose and insulin sensitivity resulting in improved blood glucose control. Exercise enhances weight loss and provides an improved quality of life and self-image. Exercise decreases high blood pressure, triglycerides and blood cholesterol, and other cardiovascular risk factors (Landry and Allen, 1992; American Diabetes Association, 2001a).

Prior to beginning an exercise program, it is recommended the patient undergo medical evaluation to screen for the presence of complications that could be worsened by exercise. It is then recommended that exercise include a warm-up and cool-down period as is standard for all exercise guidelines. Recommendations also state that individuals get

a moderate amount of physical activity on most days of the week (American Diabetes Association 2001a).

Self-monitoring of blood glucose (SMBG) is an important component of diabetes self-management. When properly used, it can help people determine their blood glucose levels so adjustments in behaviors or treatment can be made. The frequency and reasons for monitoring may differ depending upon the patient. Reasons include to achieve or maintain a specific level of glycemic control, prevention and detection of hypoglycemia, avoidance of severe hyperglycemia, and to monitor changes in activity and diet (American Diabetes Association, 1995). Gebhart et al. (1991) reported that poor patient adherence with SMBG is a problem because of discomfort associated with finger puncture, expense, and interference with normal activities.

## Education

Individuals with diabetes must learn self-management skills and make lifestyle changes to effectively manage their disease to avoid or delay acute and long-term complications (Task Force to Revise the National Standards, 1995). Individualization is an essential component of diabetes education. There are several factors that must be taken into consideration to achieve self-care goals. Attitudes and beliefs about diabetes, psychological status and amount of stress, literacy level, learning style, physical condition, age, and self-care regimen are aspects to consider when providing the

appropriate knowledge and skills to achieve self-care goals with the patient (American Association of Diabetes Educators, 1995).

The goal of education is behavior change. Educators must use techniques that promote behavior change in their counseling. Research indicates that diabetes education improves self-management in aspects of diabetes care among patients. Therefore, patients have an improved blood glucose control and health status. The purpose of education is to facilitate these self-management strategies and improve quality of life (Peyrot, 1999).

Education is important to give patients the knowledge, skills and motivation to manage diabetes. Beeney and Dunn (1990) revealed knowledge does not predict metabolic control and mean HgbA1c did not change after education. Blood glucose was not tested in this study. However, there was significant improvement in awareness of the causes and management of hypoglycemia and correct management of diabetes during sickness. The results of this study revealed that diabetes education programs were successful in increasing patient knowledge. Patients with Type 2 diabetes mellitus had less diabetes knowledge than patients with Type 1 diabetes. It was suggested that those who scored lowest in knowledge were treated by oral hypoglycemic agents and this may be perceived by the patient as a "cure," therefore, eliminating the responsibility for self-management (Beeney and Dunn, 1990).

Peyrot and Rubin (1994) conducted a study on the relation between education and glycemic control. They found that the improvement in self-care behaviors produced by diabetes education was in three areas: insulin administration, SMBG, and exercise. Peyrot and Rubin (1994) stated that those who improved glycemic control changed only

one self-care behavior at a time. Insulin administration had the most impact on glycemic control of the self-care behaviors examined. The researchers recommended that educators focus on one self-care behavior to change at a time and focus in the area most needed or the area the patient is most willing to change. These results support the claim that independent self-management is an effective way to achieve good glycemic control.

Focus groups have been used to develop and evaluate educational materials. Anderson et al. (1998) and Crockett et al. (1990) conducted focus groups to determine themes and issues to help with the development of diabetes education programs and materials. These themes and ideas included influences (social, economic, and cultural), health behavior changes, eating habits, and interest and approaches of nutrition education. Trenkner and Achterberg (1991) performed a study using focus groups to evaluate nutrition education materials among persons from a community wellness center and found that subjects preferred materials that were simple, easy to understand, and specific.

Anderson et al. (1996) used focus groups to identify content appropriate for a diabetes educational video for African American adults with Type 2 diabetes. The research revealed that food and eating was the most significant theme of diabetes management. The second theme was education about diabetes self-management and the third was coping with the psychosocial aspects of the disease. Subjects wanted to learn about the disease, diet, complications, and dealing with the emotional components of health care and family.

Blanchard et al. (1999) conducted a focus group study to determine needs of diabetes education programs for African Americans. Subjects expressed interest in group meetings as a better learning environment. The subjects wanted to share with others

about experiences and support each other in the education process. Diet modification and fear of acute and chronic complications were the main topics of discussion. The financial burden of diabetes was also discussed. The researchers found subjects felt powerless over diabetes and subjects had a knowledge deficit regarding diabetes management.

Diabetes education for self-management needs to include behavioral and educational components. Suggestions have been made that overly structured or standardized programs may not be optimal. Interventions that allow patients to choose their own self-management goals may be more successful. Barriers to participation in self-management education include time, cost, other demands, support and motivational issues. It is important for educators to be realistic and patient-centered (Glasgow, 1999).

### Expanded Health Belief Model

The Health Belief Model (HBM) is a widely adopted guide to help understand preventative health care behavior (Burns, 1992). One part of the HBM is perceived susceptibility and consists of the feelings of vulnerability to a condition. Another component is perceived severity and concerns the feelings about contracting an illness. Perceived benefits are an aspect that considers the beliefs regarding the effectiveness of the various actions available to reduce the threat of the illness. The final dimension is perceived barriers, which are the negative aspects that may inhibit undertaking the recommended behavior (Becker and Janz, 1985).

Becker and Janz (1985) recommended that the HBM be used to assess and treat potential noncompliance by patients with diabetes. The HBM offers a uniform tool for

learning about patient's beliefs and attitudes and helping predict patient compliance. The dimensions of the HBM can be used to facilitate attempts by health care professionals to assess patients' with diabetes attitudes and, therefore, enable more reliable evaluation of the interventions designed to alter patients' beliefs and subsequently compliance behaviors (Becker and Janz, 1985).

Chapman et al. (1995) used the HBM to develop a study to address diabetes education with older adults. The purpose of this study was to evaluate the association of psychosocial variables with dietary adherence in elderly patients with diabetes. Subjects were randomly selected and were asked to complete a questionnaire. Results indicated patients knew that diabetes was serious and that diet was an important aspect in maintaining good control. Subjects who took insulin perceived more barriers to control. There was no correlation between fasting blood glucose values and perceived benefits. There was a knowledge deficit in the subjects' understanding of the diet guidelines and perceived dietary adherence. Chapman et al. (1995) concluded that education should focus on ways to change beliefs and improve attitudes towards dietary adherence as patients may change their behavior simply by changing their attitudes.

Harris and Linn (1985) sampled 93 men with Type 2 diabetes about health beliefs and adherence. The HBM was used to create a survey to assess health beliefs of these subjects. The subjects were most compliant with medications and least compliant with diet. The researchers reported the severity construct of the HBM was the only belief positively correlated with adherence. Health beliefs were minimally correlated with adherence and strongly correlated with metabolic control. For these subjects the treatment of diabetes was perceived as beneficial although, adherence was not ideal. The

reality of the disease and possible complications revealed a strong health belief about adherence to the medical regimen among subjects.

A study by Chin et al. (2000) using the HBM was conducted with 19 African American patients with Type 2 diabetes. Subjects 65 years or older participated in interviews consisting of open-ended questions. The results revealed the broad themes of quality of life, health beliefs, and social context. Patients varied on how aggressive they wished to be treated. Some wished for a “do nothing” approach, while others had adapted their lives and aggressively attacked their disease. The patients’ attitudes toward their illness and treatment revealed these differences. One example given was subjects that had developed severe complications after years of self-neglect expressed a belief in aggressive treatment. Factors that influenced the desired treatment were the severity of diabetes, aging and family issues, ambivalence and uncertainty, coping with diabetes, and religion. Researchers suggested the HBM framework be integrated into diabetes care to aid in the decision making about the aggressiveness of diabetes management.

Quatromoni et al. (1994) conducted four focus groups with 30 low-income male and female Latinos with Type 2 diabetes. A planning group identified key concept areas for the focus groups, which were not based on a specific theory. The key concept areas were social impact of diabetes, health impact of diabetes, nutrition practices, exercise habits, health beliefs, and perceived needs of Latinos with diabetes. The discussion guide consisted of eight questions along with probing questions. The researchers concluded that the major issues subjects with diabetes mentioned were social isolation, little understanding of the long-term complications, and a lack of clarity on the role of diet and exercise. Other conclusions were the inability of the subjects to adopt and maintain



dietary and exercise patterns, skepticism regarding the value of preventative health care, widely used non-medical remedies for diabetes, and a strong need for appropriate services that are sensitive to the Latino culture.

The Expanded Health Belief Model (EHBM) is an expanded HBM by adding more constructs (Figure 1). It provides illustrative guidelines that are useful to health care professionals working in the area of preventative health care (Burns, 1992). In a review, Burns detailed each construct of the EHBM. It was suggested that the best way to approach preventive health care problems with the EHBM was to use the model as a structure for focus group research. It was recommended that the EHBM be used as a checklist during a focus group session.

Burns (1992) recommended five general guidelines that were logical and acceptable for using the EHBM. The first step was that to understand human behavior, one must include a broad array of factors when addressing preventive health care successfully. The second step was that most people need assistance to move through the process of preventative health care decision making. He suggested that health care professionals follow the typical person as they move through the threat assessment, action assessment, and outcome assessment stages. Third, it was useful to identify and work through the “sticking points” in the process. The EHBM should be used as a map to identify reasons why people fail to consider themselves at risk and why they exhibit adherence. The fourth step was to segment the target population into homogenous groups based on distinguishing individual differences. It was suggested that the EHBM expands the individual differences component of the HBM by adding a variety of new demographic descriptors useful to health care professionals in identifying target market

groups. And finally, new preventative health care options must be integrated into the process. It was recommended that the EHBM provide a frame of reference for understanding and overcoming the several types of resistance to change.

Wdowik et al. (1997) conducted a study using two focus groups and 15 telephone interviews with college students with Type 1 diabetes. The questions were guided by the EHBM. The objective was to identify factors that affect the ability and motivation of college students to engage in appropriate self-care behaviors for successful management of diabetes. The five most notable barriers to successful diabetes management were scheduling and time management difficulties, stress, hypoglycemic reactions, diet management, and inadequate finances. Psychosocial issues of inconvenience, motivation, and social support were also mentioned. This study showed it was important to design diabetes education programs to meet clients' perceived needs.

### Social Influence

The social influence construct of the EHBM was of interest in this study. Social support is one factor viewed as valuable to management of diabetes. Social support can be defined as supportive or non-supportive depending on how it is delivered, how it is viewed, and the context in which it is provided. Types of social support may consist of family such as spouse, children, and parents; culture; health care professionals; and friends. It is important to consider the changes in needs of support during the life span and the timing of support during the illness of diabetes. Social support must be ongoing

(Wallhagen, 1999). And as Baric (1969) stated, people must have support from their social environment when a behavior is to be undertaken and maintained.

Schwartz et al. (1991) stated that family support is important in diabetes management of all ages. Good family functioning was found to be higher for patients with good short-term control. The researchers also suggested that physicians, nurses, and other health care professionals need to provide support as this can also impact control. They concluded that support from important others can help with the stress of coping with diabetes. They also stated that support groups were beneficial.

Llyod et al. (1993) reported that social support was related to greater compliance with dietary recommendations and schedule of meals and snacks among patients with Type 1 diabetes. Support from peers also influenced control. Those subjects with the highest social support performed the most self-care as related to diabetes management, and therefore, improved glycemic control and prevention or delay of long-term complications.

Anderson et al. (1998) found in a focus group study with Latinos that a major theme was lack of social support. The lack of social support from family and friends was due to the lack of understanding of diabetes and its impact. Latinos were used to relying on family support and felt isolated if they were not receiving enough support. The family was mentioned in the top five psychosocial issues. The role of social support was perceived as important in a person's ability to successfully manage their diabetes.

Maillet et al. (1996) conducted a focus group study with seven African American women with or at risk for Type 2 diabetes. The researchers reported the subjects felt there was a lack of education by health care providers about complications, weight loss to

improve glycemic control, and foot care. Health care professionals must show support of their patients by educating themselves. Malliet et al. (1996) also revealed the theme of lack of family support. Subjects agreed that family support had a strong impact on how they cared for their diabetes. A majority of the subjects felt overly restricted in their diet because of family concern, which was viewed as a negative consequence. Spouses encouraged a diabetic diet for the subjects, but were not receptive to following the same diet.

Blue (1995) conducted a study with adults and found all subjects in this study had the intention to exercise. However, Courneya and McAuley (1995) reported that despite the health benefits of regular exercise, participation in exercise was low among the North American population. Those who participated in an exercise program had difficulty maintaining it. Social influence was looked at in both studies along with attitude about exercise and how this effects exercise adherence. Blue (1995) found that social influence on exercise intentions was small and intention was significantly predictive of exercise behavior. Courneya and McAuley (1995) found social support to be correlated with perceived control and that social influence did not have a significant correlation with intention or adherence to exercise.

Social support has been given the least attention in research when looking at characteristics of patients, doctor-patient relationships, and non-disease-related stress. Social support, however, has been shown to have profound effects on disease management in general. Research on social support with patients with Type 2 diabetes is limited and has been almost exclusive to patients with Type 1 diabetes (Fisher et al., 1998). Glasgow (1995) stated that community and social supports are important aspects

of diabetes education, but he feels that social support has not been given the attention that is needed in the diabetes literature.

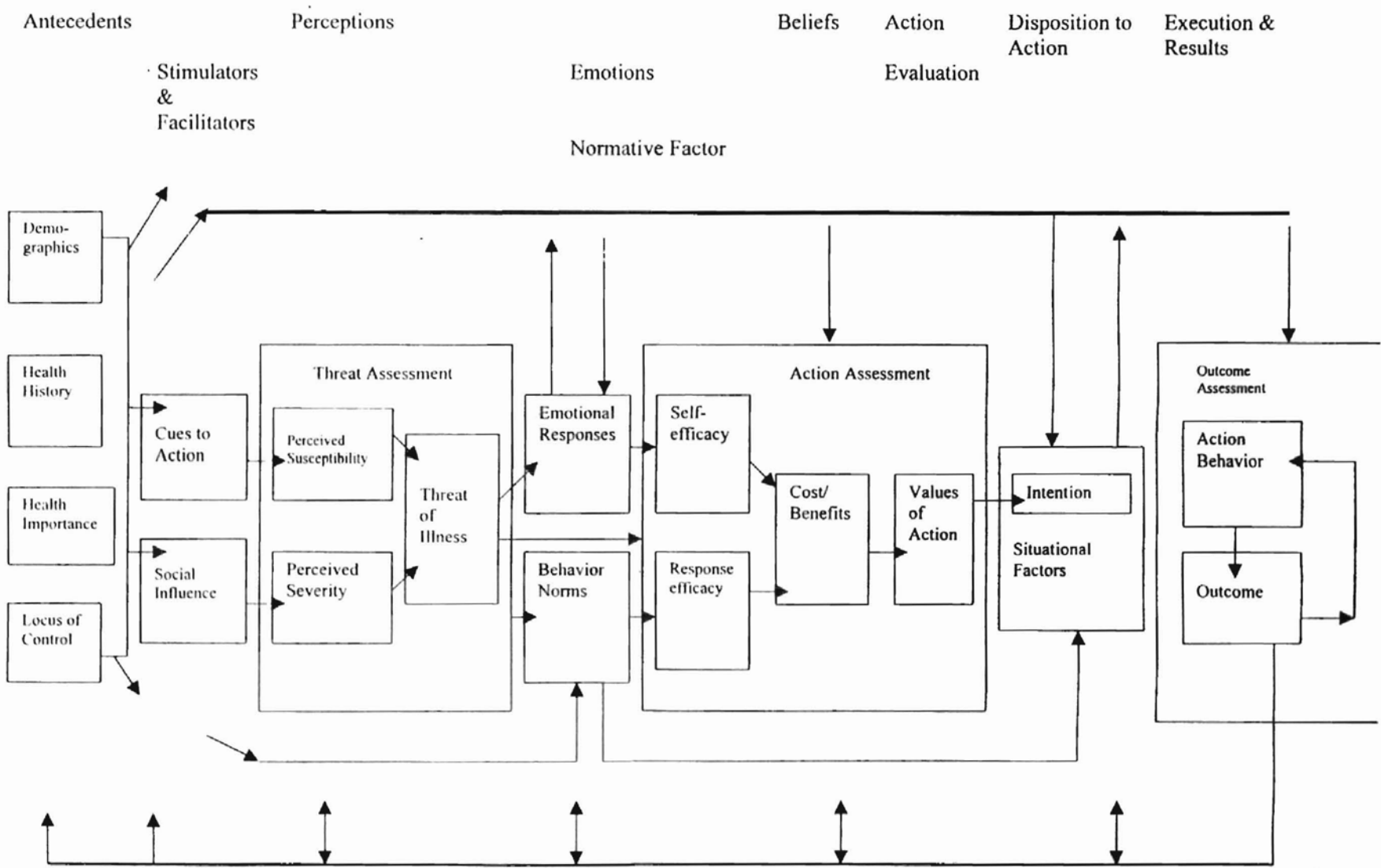


Figure 1. The Expanded Health Belief Model

## CHAPTER III

### METHODOLOGY

The objective of this study was to determine the influence of the social support construct of the Expanded Health Belief Model on self-management behaviors in persons with Type 2 diabetes mellitus. The behavior of diabetes meal planning was emphasized. Other constructs of the EHBM included were feelings about health, motivators and barriers to following a diet, and dietary self-efficacy.

#### Research Design

The research design of this study was a descriptive design and employed the qualitative methods of focus groups and individual interviews. This study was based on the constructs of the Expanded Health Belief Model (Burns, 1992).

#### Subjects

Subjects for this study were males and females recruited from Woodward and Stillwater, Oklahoma. The criteria to be a participant included having a diagnosis of Type 2 diabetes mellitus for at least one year and being 45-75 years of age. The subjects were all in a stable medical condition. Subjects with other chronic diseases were eligible. Subjects with or without a significant other or spouse were also eligible.

Subjects were recruited through the local American Diabetes Association chapter, physicians, and local newspapers. This information was put in the newspaper twice for recruitment purposes. A recruitment handout was developed with information regarding the study and given to the above mentioned groups (Appendix A). This handout explained what a focus group or individual interview was, how long it would last, and that subjects would receive a \$15 incentive upon completion of the focus group or interview. The handout also explained that participation was voluntary, they could ask questions at any time, they could withdraw at any time, that their name would not appear in any reports, and who the researchers were. A flyer was also developed and placed at local pharmacies, physician offices, and at the local hospital (Appendix B). Subjects who were interested responded and were screened for eligibility on the phone. The Oklahoma State University Human Subjects Review Board approved all research activities associated with this study (Appendix C).

### Question Development

Questions that had been asked of college students with Type 1 diabetes mellitus were adapted to be appropriate for people with Type 2 diabetes of an older age (Wdowik et al., 1997). Questions were open-ended to stimulate discussion (Appendix D) and questions reflected the constructs of the Expanded Health Belief Model, including antecedents, stimulators and facilitators, perceptions, normative behavior, beliefs, and action evaluation. Probe questions were used after each question to further stimulate discussion, if needed. The first question served as an icebreaker. Sets of questions were



asked of subjects that addressed their feeling about their health and its importance. Questions also addressed motivators and barriers to following a meal plan. Social and family support were also addressed throughout the study in all aspects of diabetes management.

### Pilot Group

A pilot group was conducted to test questions and techniques. The first scheduled focus group was considered the pilot group. At the completion of this group, some of the questions were reworded for increased clarification. Input on questions and techniques were also obtained from Nutritional Sciences graduate students at a focus group training seminar.

### Focus Group and Interview Methods

Focus groups were composed of a small number of subjects who were asked an organized set of questions in a consistent manner. Focus group interviews provided means of obtaining in-depth information from representatives of a target audience in an atmosphere that encouraged discussion of attitudes and perceptions about a specific topic. Focus group interviews provided insights into complex behavior such as food consumption patterns, motivation and the degree of consensus on a topic; bridged communication gaps between consumers and providers; and enabled subjects to refine

their views based on the responses of other subjects (Krueger, 1994; Morgan and Spanish, 1984; Betts et al., 1996).

Semi-structured interviews were another method used in qualitative data collection. This option was used since some persons may not want to participate in a group or may find it difficult to leave their home to attend a focus group. The same questions that were used in the focus groups were used in the interviews. During the open-ended interview, subjects were allowed to respond in words of their choosing. This type of open-ended interview allowed for more insight than closed-ended questions. Interviews did not allow the interaction with one's peers found with focus groups, but provided an atmosphere for more participation and less confounding of individual responses (Krueger, 1994).

In Woodward, subjects were assigned to one of five focus groups; Stillwater subjects completed individual interviews due to assignment of moderator and interviewer. Five to ten subjects were assigned to each focus group allowing for those who did not attend. Focus groups were arranged so that gender was the same within each group. Subjects were reminded of the focus group or individual interview with an official letter one-week prior to their scheduled time. They were also reminded with a phone call 24 to 48 hours before the scheduled group or interview. Subjects received a \$15 incentive at the completion of a focus group or interview. Focus groups were conducted until there was substantial repetition of information (Krueger, 1994).

### Focus group staff

The focus group staff consisted of a moderator and an assistant. The assistant made sure the tape recorder was on and changed the tape as needed. The assistant also took notes and documented where each subject was seated. The assistant helped watch for nonverbal interaction between subjects.

The moderator of the focus groups was a graduate student in nutritional sciences who attended a focus group training session to learn listening and directive skills necessary for the success of the focus groups. The moderator was a registered dietitian and knew the subjects in Woodward. A graduate student in Family Relations and Child Development conducted the individual interviews. Dr. Kathryn Keim conducted the training session. Characteristics of focus groups, including recruitment, meeting environments, moderator skills and appropriate analysis were reviewed at the focus group training session. An in-depth discussion was held regarding the steps in conducting a focus group. Mock focus groups were also held.

### Focus group procedures

In order for a focus group to be conducted, a minimum of four adults had to be present. The meeting room was established in a neutral setting at the Woodward Hospital and Health Center Private Dining Room. Name cards were pre-set in a circle-seating pattern before each focus group. All subjects signed a consent form when they first arrived for the group (Appendix E). Demographic information was obtained through a

questionnaire (Appendix F). Anthropometric measures were collected from the focus group subjects to better describe them. Height and weight were obtained at the beginning of the focus group. Height was measured without shoes using a steel tape fixed to the wall with a right angle headboard. An upright single-beam scale was used to weigh subjects in light clothing and without shoes. The scales were reset at zero and calibrated each time weights were measured. Height and weight were obtained by self-report in the interview subjects.

The focus groups and interviews were audiotaped using a center external microphone placed in the middle of the circle of subjects. The moderator gave the welcome and overview of the discussion at the beginning of each focus group. The moderator also gave the ground rules and began the first question in a round robin fashion. As the questions were asked, the moderator listened for inconsistent or vague comments and probed for understanding. The ending of each group consisted of asking for any last comments to add and subjects were thanked for their participation. Individual interviews were conducted in a similar fashion and in the subjects' homes.

### Data Analysis

Analysis began immediately after a focus group or interview was completed. The moderator and assistant reviewed the seating diagram and had a debriefing session to make note of themes and ideas, and to compare and contrast what each had heard. A focus group and interview analysis worksheet was completed after each focus group and interview (Appendix G).

Verbatim transcripts were typed from the audiotapes for systematic analysis of the data by the Bureau for Social Research at Oklahoma State University. The moderator reviewed the printed transcripts for accuracy by listening to the audiotapes. Corrections were made to the transcripts if errors were discovered. Minimal errors were found.

Two researchers coded and analyzed the transcripts creating code words to capture the meaning of text segments and paragraphs. All interview transcripts were treated as one group. After reading the transcripts several times, a list of code words was agreed upon (Appendix H). Intra-coder and inter-coder reliability were calculated by dividing the agreements by the sum of the agreements and disagreements found in 10 pages of the transcripts (Miles and Huberman, 1984). Intra-coder or code-recode reliability was found to be 84%. Inter-coder reliability was found to be 75%. Two analysts, the two researchers, were used to code the transcripts to reduce bias (Trenkner et al., 1991).

Both simple and segment analysis techniques were used to analyze this data along with constant comparative methods (Miles and Huberman, 1984). Code words were used to identify segments and paragraphs. The transcripts were cut apart based on the code words and grouped together. Under each code word smaller groupings were then identified and placed into separate groupings based on the different constructs of the Expanded Health Belief Model. At this point, typical quotes were identified. The general themes or meaning of these groups of code words were then written down along with the typical quotes. Each phase of the writing was reviewed by the second researcher to ensure major themes and issues were represented. Finally, a matrix was created of the

code words and constructs of the Expanded Health Belief Model to get the overall picture of the data.

## CHAPTER IV

### RESULTS

The results will be presented using the constructs of the EHBM. The purpose of this project was to learn about meal planning issues in persons with Type 2 diabetes mellitus with a specific emphasis on social influence issues related to meal planning. However, all aspects of diabetes self-management were discussed by the subjects and are summarized here.

#### Antecedents

##### Demographics

Demographic information can be used to identify segments within a population by identifying the preventative health care behaviors (Burns, 1992). Thirty-three subjects were recruited to participate in the focus groups and eight for the individual interviews. One subject had Type 1 diabetes and was mistakenly included in one of the focus groups. A total of thirty-four subjects were interviewed or participated in the focus groups. Twenty-six subjects participated in five focus groups and eight participated in the individual interviews. Four to seven subjects participated in each focus group. Individual interviews were treated as one group. Three out of the eight individual interviews were disregarded due to tape recorder malfunction and no audiotape was produced resulting in five individual interviews being included in the data analysis.

Thirty-one subjects were included in the final data analysis among six total groups. The mean age of subjects was 62.5 years (range 45-82 years). The mean height was 65.5 inches (range 58-72 inches) and the mean weight was 176.6 pounds (range 131-230 pounds) for all subjects. No subjects had severe complications from diabetes such as amputations or blindness. The question in regard to length each subject had diabetes was not asked. The majority of the subjects were white, married, and retired (Table 1).

### Health History

The antecedent health history can mean health history of past illnesses, current state of health, or interactions with health care providers (Burns, 1992). All were found in the present study.

Past interactions with health care providers, a part of health history (Burns, 1992) were mentioned in all focus groups and interviews. Health care professionals that were mentioned by the subjects included physicians, specialists (cardiologist), optometrists, and dietitians.

Physicians were the primary health care professional mentioned (Table 2). Subjects wanted to learn from their physician. Subjects stated they believed everything their physician told them and relied on the physician to help their diabetes control. The subjects placed a lot of trust in their physician. Several commented that they were friends with their physician. Subjects were not afraid to ask questions and some were very straightforward about their expectations. The subjects wanted to feel the doctor was on their side. They also stated they did not want to be criticized when they saw their



physician and things were not perfect. Subjects often commented on evaluating the quality of care they received from their physicians. They stated that if they were not happy with their physician they would find another one. Quotes included “He’s like a cheerleader.” and “You’re not going to report us to our doctors, are you?” One comment in response to a benefit of following a meal plan, “Not having my knuckles hit when I return to the doctor.”

Registered dietitians (RD) were mentioned less often than physicians and only mentioned by the focus groups. Those subjects that mentioned a RD stated they had diet education and meal planning sessions under the guidance of a dietitian. A RD served as the moderator for the focus groups.

Chronic diseases were discussed in all groups and interviews and text segments were coded ‘chronic disease’ (Table 2). All subjects were dealing with multiple chronic diseases along with having Type 2 diabetes mellitus. Other chronic diseases mentioned were high blood pressure, high blood cholesterol, open heart and bypass surgery, heart attack, prostate cancer, and congestive heart failure. An underlying theme was how vulnerable they were and how ill they were. These two quotes reflect this theme, “You get one thing taken care of and another breaks out.” and “Once you get a certain age, things start adding up.”

Diabetes and medication complications were mentioned in 100% of the groups and coded ‘complications’ (Table 2). All of the subjects talked about and were very aware of the short-term complications i.e., thirst and hypoglycemia, and the long-term complications of diabetes mellitus. The long-term complications will be discussed here. Subjects worried about the long-term complications and how complications serve as a

“big reminder” to control their diabetes. They mentioned the long-term complications such as heart disease, neuropathy in their feet, circulation problems, changes in eyesight and possible blindness, kidney failure, and amputations. They also commented on complications of the medications they were taking. One example of medication was Rezulin and the possible liver damage that it might cause. Two quotes that captured this complications theme were, “You don’t know where it’s going to hit next.” and “I want to be able to see my grandchildren and great-grandchildren and I don’t want to be without one of my legs or any other part of my body.”

Parents were mentioned by 67% of the groups (Table 2). Many of the subjects commented they learned about diabetes and what to do to take of themselves from their parents. This is reflected by the quote, “I learned what to do from my mother.” Several comments were made that parents also influenced learned eating habits as some stated they were told by parents to always clean their plates. Most of the subjects’ parents were not alive.

The hereditary nature of Type 2 diabetes mellitus was coded ‘family history’ and was discussed in 67% of the groups (Table 2). The subjects said diabetes “ran in their families.” Family members that had diabetes were grandparents, parents, and siblings. There was a sense of fear as diabetes was beginning to develop in their children. One subject stated that she was of American Indian ancestry and that diabetes was common in her family. A common quote was, “I got it from my family.”

There seemed to be some misinformation coming from healthcare providers or the subjects misunderstood what they were told. The code word ‘borderline’ was used in 50% of the groups and was used because physicians told the subjects they were

“borderline diabetic.” Physicians also told subjects not to deprive themselves and if they were craving a candy bar to eat one. Subjects who currently did not do self-monitoring of blood glucose (SMBG) stated that their physician told them not to do SMBG until the physician said they had to do it. Subjects believed that their diabetes was worse if they had to do SMBG.

### Health Importance

Health importance refers to the value a person places on having good health (Burns, 1992). Health importance was mentioned in 100% of the groups (Table 2). Subjects wanted good health and when asked to rate health importance, all subjects responded with a 10, which meant very important. All subjects agreed that feeling better was one of the greatest influences on their behaviors to control their diabetes. Several quotes that summarize the discussion included, “I think that one of the most important things in the world is your health and sometimes it takes sickness to realize that.”; “I want to feel good.”; “I’d just like to have a little more of it, health.”; and “Got to be a priority.”

Subjects were aware that not following the guidelines to obtain diabetes control, smoking, not following their meal plan and eating fatty foods, drinking alcohol, and not exercising would prevent them from obtaining good health. Subjects also stated getting older worked against them as health problems begin to ‘add up’ as you get older. Based on comments from the subjects, some subjects had not always practiced behaviors to

ensure good health. One quote that summarizes this theme was “I have always been one to ignore my health.”

### Locus of Control

Locus of control is defined as a person’s understanding of the causes of good and bad health (Burns, 1992). Determining locus of control issues was not an objective of this study, yet was discussed and the text segments that were coded ‘complications’ and ‘health importance’ had this underlying thread of locus of control (Table 2). In the text segments coded ‘complications’ there was a sense that subjects felt they will end up with some of the long-term complications. There was a sense of hopelessness or fear of not knowing what complications might happen next. The subjects stated they got tired and discouraged at times and how futile controlling their diabetes was in preventing complications. The subjects got mad at themselves when they did not have good control and admitted they did not have good diabetes control all the time. Some subjects felt no matter what they did, they would get the complications. These statements imply an external locus of control.

In the text segments coded ‘health importance’ subjects felt it was their own choice whether they were healthy or not. These subjects mentioned exercising, playing golf, going by the diabetes control guidelines, following a meal plan that aided blood glucose control, and quitting smoking as important factors in improving health. These statements imply an internal locus of control at least for maintaining overall health.

## Stimulators and Facilitators

### Cues to Action

External segments or comments that portray a person's realization that he or she is at health risk refer to cues to action (Burns, 1992). Examples include news stories, public health statements, or other educational events. There were no comments made associated with cues to action.

### Social Influence

Social influence refers to the peers, family, or general public and the relation to preventative health care behavior (Burns, 1992). There were many text segments that were coded social influence. There were direct questions about what social aspects influenced the subjects' ability to control their diabetes mellitus and food intake. The following code words used were spouse, children, grandchildren, friends, diabetes support groups, and siblings.

### Spouse

There were text segments coded 'spouse' in 100% of the groups (Table 3). In general, the spouse was supportive in controlling diabetes and following the meal plan. Almost all of the subjects commented that they worked together with their spouse on almost all behaviors related to keeping their diabetes in control. Examples of spousal

support included finding appropriate recipes and food preparation methods; using smaller plates to eat from; and reminding the subject when it was time to eat. One spouse lances the subject's finger when checking blood sugar. Many of the subjects wanted to please their spouse and statements such as wanting their blood sugar to be low to make the spouse happy were made. Some subjects stated their spouse also had diabetes. A common quote of the male subjects with diabetes, "You fix it and I'll eat it."

The spouse also provided barriers to diabetes management. It was interesting to note that when subjects were discussing this in a group they always prefaced it with the comment that this hindrance was not intentional. One example given was that the spouse was a very generous person and liked to share food with the subject, which made following the meal plan difficult. The subjects also felt that they deprived their spouse because the person with diabetes could not eat certain foods. The subjects stated they would make something for their spouse that was not allowed in their meal plan and was usually sweet or dessert. It was obvious from the discussion that the subjects were in a 'yes and no food frame of mind.'

### Children

Children were mentioned by 100% of the groups (Table 3). Children helped in controlling their diabetes but did not play a role if they did not live nearby. Daughters seem to be more involved by doing such things as reading food labels and observing what the subjects were eating. Children often ate other foods but understood the subjects' meal plans. For example, when the children came to visit, different foods from the usual were prepared based on the childrens' food likes. One barrier the children presented for

hindering diabetes control was holiday meals. This was because eating the holiday meal with children present made following a meal plan more difficult. The subjects felt the meal had to be prepared, as the meals were prepared when their children were younger and with the foods the children and grandchildren liked. The children seemed to be the naggers and were concerned when the parent with diabetes was doing something they should not be doing. A quote that reflected the nagging of the children, “Mom, are you sure you’re supposed to be eating that.” Another common quote, “It has to be serious before your kids pay attention.”

#### Grandchildren

Grandchildren were mentioned in 100% of the groups (Table 3). Subjects said the grandchildren were concerned about the grandparents’ well being and seemed knowledgeable about the disease through comments made about hypoglycemia and sweets in the diet. Several subjects quoted, “Grandma I have to take care of you.” Subjects commented grandchildren provide motivation to take better care of themselves by following health care providers’ recommendations, as the subjects want to see their grandchildren grow up.

#### Diabetes support groups

Diabetes support groups were mentioned by 100% of the groups (Table 3) in response to a direct question. The subjects liked the idea of diabetes support groups whether they had previously attended one or not. Attending the diabetes support group helped them realize they were not the only people dealing with diabetes and that other

people with diabetes felt the same way they did on many issues. Subjects stated anytime you found someone with the same problems as you it would provide support. Attending the support groups was a time of sharing of ideas and recipes, and listening to speakers on various diabetes topics. The few subjects that had never attended a support group stated that they would be interested in attending. The following comments were typical when discussing diabetes support groups, “It’s a little jog back to reality.”; “I’m not so weird after all.”; “It just made me feel good about myself.”; and “It makes you feel like you’re not the only one like this.”

### Friends

Friends were mentioned in 83% of the groups (Table 3) and were both helpful and unhelpful in following a meal plan. When friends would fix special foods for them they were helpful. These supporting friends were aware of the disease and knew what it took to keep diabetes in control and they were also aware of long-term diabetes complications.

Friends could influence or motivate the person with diabetes to follow a meal plan in a negative fashion. Friends would say to the person with diabetes: “Go ahead and take that and pretty soon I’ll be leading you around. You won’t be able to see.” These friends would say “you can have this or that” referring to their meal plan. Friends would sometimes try to control the subject by dictating what the subject could eat and friends seemed more like a parent. Subjects commented that friends could sabotage good eating habits and was discussed in 17% of the groups. One subject commented on how the friend would say “one time won’t hurt you.” This same subject then stated how that one time of eating a forbidden food would lead to eating the forbidden food more often.



### Siblings

Siblings were mentioned by 67% of the groups (Table 3). Siblings were only mentioned when the subjects' siblings also had diabetes. There was not much discussion concerning the sibling, but several short comments. What is interesting is that the subjects stated they 'watch out for their sibling's diet.'

### Perceptions

#### Threat of the Illness

Threat of the illness pertains to how a person views the likelihood (perceived susceptibility) and severity of an illness and what they are willing to do to prevent the illness or lessen the severity (Burns, 1992). Subjects had a high 'threat of illness' and text segments were coded using the words chronic diseases (100%), complications (100%), and borderline diabetes (50%) (Table 2). They felt their disease was severe and felt susceptible to the complications associated with Type 2 diabetes. Subjects stated they were afraid of long-term complications and scared of the disease. Some of the subjects were already suffering from diabetes long-term complications. They were very aware of the short- and long-term diabetes complications. These aspects were discussed under health history. One quote that describes this threat of illness was: "If you have seen what I have seen here at the hospital, you'll want to have good control."

The perception that diabetes mellitus was restrictive was mentioned in 50% of the groups and was coded 'restrictive' (Table 4). Subjects felt that diabetes and everything

connected with it was restrictive. Thus, following a meal plan, SMBG, and following a schedule were perceived as restrictive. There was also the perception that the person with diabetes had to eat different foods from everyone else, which was especially difficult at social activities. The thread with SMBG implied a lack of understanding of how to adjust medication, food intake, or exercise if the blood sugar was out of range and this was why diabetes was restrictive. One quote that summarizes subjects' feelings was "I could be a lot stricter, but you know what, you've only got so many years left, so its really such a burden, just to be strict, strict, strict and have this and not have that, you know."

## Emotions

### Emotional Response

Emotional response refers to the positive and negative emotions related to preventative health care choices (Burns, 1992). Fifty percent of the groups discussed feeling sorry for themselves because they had diabetes and these text segments were coded 'feeling sorry' (Table 4). Subjects discussed stages to dealing with diabetes. When newly diagnosed with diabetes it was hard to deal with and, if you felt bad, you could care less. Others stated when newly diagnosed they wanted to follow all the guidelines and learn as much as they could. At a later stage, subjects knew what they could get by with and deal with. It was interesting to observe others in the group comfort those that were 'feeling sorry for themselves.' Subjects who had diabetes for a longer

time period, comforted those that were newly diagnosed even though it had been at least one year from diagnosis. Subjects commented that depression and stress were a part of feeling sorry for themselves and some subjects seem depressed because they had diabetes. It's like they were the only person with diabetes and life was hopeless. Food was mentioned within this issue of 'feeling sorry for oneself.' Baking or preparing certain foods and then not being able to eat the foods made one "feel sorry for myself." The following quotes captured this 'feeling sorry': "Well, I feel sorry for myself to be truthful with you."; "I'd just have me a little pity cry."; "I just don't care."; and "I'm sorry I gained weight, but I just don't care anymore."

Guilt was mentioned by 33% of the groups when they cheated and these text segments were coded 'cheating/guilt' (Table 4). Cheating was defined as not doing what their doctor wanted them to do or not following the meal plan. In fact, in these groups, guilt or cheating was almost always associated with not following the diabetic diet or eating sweets and desserts. Some subjects made statements that blood sugar values could be a sign if they were cheating or not. Some subjects stated that they felt good about how well they controlled their diabetes but 'did cheat at times.' Statements made by subjects indicated there was good and bad cheating and was reflected by statements such as "cheating on pie was not a bad cheat if it was sugar-free." It seemed that a bad cheat was associated with eating concentrated sweets. Quotes from these focus groups included, "I cheat too, you know."; "Sometimes I just have to kind of sneak something."; and "I might cheat four times a month and that's not a bad cheat though."

Only one focus group (17%) talked about the 'fear of insulin' (Table 4). They did not want to take insulin because they were "worse off" or that their diabetes was worse if

they had to take insulin. The subjects were afraid of having to take insulin. It was not certain if they were afraid of the actual needle, the “shots,” or that taking insulin was possibly perceived as failure.

## Normative Factor

### Behavior Norms

Behavior norms are the “expectations of behavior” held by others and provide a strong influence on human behavior (Burns, 1992). There was a normative construct that other people were telling the subjects how to eat, i.e. no sugar, and this is not comparable with the new diet guidelines. However, this old information is their behavioral norm.

## Beliefs

### Response Efficacy

The degree to which a person believes a response will reduce the health threat describes response efficacy (Burns, 1992). Subjects were at two extremes as to whether or not they believed following the diabetes guidelines would reduce the health threat of diabetes complications. This aspect came up under the antecedent complications and locus of control associated with health importance (Table 2). Some subjects had a sense

of hopelessness, while others felt what they did would reduce the health threat of long-term complications.

### Self-efficacy

Self-efficacy pertains to the belief that a person can complete an action or behavior (Burns, 1992). Text statements were coded 'ability' in 83% of the groups to track self-efficacy (Table 5). All of the text segments dealt with the ability to make changes in behaviors, plans, or food intake to keep blood glucose in control. Most subjects' felt they had the ability but for various reasons did not perform the tasks all the time to keep blood glucose in control. Subjects also stated that eventually behaviors (i.e. SMBG, meal plans, low fat eating) could become habit. Some subjects stated that their spouse could influence their ability to keep the blood glucose in control, while other subjects stated no one influenced them. Subjects recognized that the confidence to do a behavior was different than the determination to do the behavior as reflected in this quote, "Ability and determination are two different words." Other quotes that reflected this confidence to do the correct behaviors to keep their diabetes in control included "I wish it wasn't such an effort."

Sixty-seven percent of the groups discussed they would like someone else to take care of their diabetes and these text segments were coded 'someone else.' Subjects wanted someone else to control their diabetes for them and make all of the decisions and do everything to control their diabetes. For example, one subject's spouse does her SMBG for her because she could not prick her finger. Several subjects talked about

when they were in the hospital it was nice having someone else check their blood glucose and serve their meals. Subjects also wanted health care professionals to worry about controlling the diabetes. Subjects talked about having a maid or dietitian to plan and cook for them so they would not have to think about it. These quotes reflected this theme, “Someone to serve me a meal in the kitchen” and “If someone would just tell you what to cook and do the shopping and bring it in and say – here’s what you’re supposed to cook.”

## Action Evaluation

### Costs and Benefits

This is the phase when the person weighs perceived benefits of the action against the costs. Costs of the action refer to the tangible and intangible costs of doing a particular behavior (Burns, 1992) and by some researchers are called the barriers associated with an action (Kasl and Cobb., 1966). All of the groups discussed costs or barriers of following a meal plan (Table 6) and barriers were mentioned with other actions and constructs. The barriers to following a meal plan included temptation to eat sweets, lack of motivation and determination, lack of education (subjects felt exchange system was confusing), being alone, the time and effort involved to following a diabetic diet (spend hours at grocery store reading labels), other chronic diseases they were dealing with, and stress. Other threads dealing with barriers included when the diet was severely restricted failure would happen because the craving for other not allowed foods

would become worse. Some quotes that reflect barriers of following a meal plan included “I could find all kinds of excuses.” (meaning to not follow a meal plan) and “My problem is time management.”

Benefits of the action refer to the optimal outcomes associated with particular behaviors (Burns, 1992). The subjects stated that following a meal plan or eating three meals a day and a snack on a time schedule was a benefit because they felt better. Having a schedule or plan and different tricks to follow the meal plan were mentioned in 83% of the groups and coded ‘schedule, plan, tricks’ (Table 6). These schedules and tricks help them to follow a meal plan and feel better. Barriers to keeping on a schedule included time change, errands after work, and family get-togethers for a meal and people arriving late to the meal. Ways to deal with this lateness included having something to eat with you at all times, taking a work lunch break at the same time every day, and having an appetizer at family meals. The subjects stated they could tell when the schedule or meal plan was not followed because they get the feeling they need to eat or hypoglycemia for some people. All of this implies that, in order to feel good or keep the blood glucose from falling too low, it is better to have a schedule or meal plan to follow.

When asked what could reduce the costs and increase the benefits of following a meal plan, some responded growing a garden would be cheaper and provide healthier food along with exercise. Almost all the subjects misunderstood this question. When asked directly, the subjects could not think of any ways to decrease the costs or increase the benefits of following a meal plan.

## Value of Action

Value of the action pertains to the personal evaluation of each behavior alternative that would lead to the desired preventative health state (Burns, 1992). All of the groups discussed issues around controlling diabetes and was coded 'control' (Table 6). Subjects that had diabetes for a longer period of time stated they had better control now than when they were newly diagnosed. All subjects stated that better control of diabetes led to a longer life. This concept of control was all about making better choices and decisions in their everyday activities. The subjects realized that not following a meal plan, medication, or schedule recommendations would make a difference in the control of their diabetes.

Subjects mentioned several things that were important in keeping their diabetes in control. These items were following the meal plan, exercising, learning more about diabetes, and maintaining weight or losing weight. Subjects stated that order and stability in life made keeping diabetes in control easier. They were concerned about complications and the thought of losing toes or limbs would make them think about their meal plan and getting better control. Subjects stated that stress interfered with controlling diabetes and blood sugar levels.



## Disposition to Action

### Intention

A person's disposition to complete a behavior describes intention (Burns, 1992). Subjects never discussed their intention to follow a meal plan, exercise, or conduct SMBG. All subjects were doing these behaviors to some degree already.

### Situational Factors

Situational factors are conditions or circumstances that impede an intention or the fulfillment to do a behavior (Burns, 1992). In the present study, these situational factors impeded the fulfillment of self-care behaviors. The expense of having diabetes was mentioned in 100% of the groups at multiple times in multiple areas. Discussions about expense were mentioned without being asked a direct question and were coded "cost" (Table 7). Subjects commented on the high cost of all medications. Many subjects took multiple medications besides the diabetes medicine and all mentioned how expensive the strips were for SMBG. There were many comments about how expensive it was to purchase food needed to follow the diabetes meal plan and to eat healthy. Classes and clinics for learning about diabetes were also expensive. The majority of subjects were aware that Medicare and insurance could help pay for some expenses, but some subjects did not have these resources. Several quotes included: "I can't afford the strips."; "It's very very expensive."; and "The big inconvenience is how much it costs you."

Eating out was discussed by 83% of the groups and coded 'eating out' (Table 7). Subjects stated that it was hard to follow their meal plan when eating out. A specific situational factor discussed was how expensive eating out was, especially in order to eat healthy at the same time. Fewer food choices when eating out also made it difficult. Subjects mentioned that some restaurants offered sugar free syrups and jellies, fat free items, and other healthier options that made it easier to eat out and follow the meal plan. Subjects commented that some restaurants mark their healthy options on their menu, while others disagreed with the statements that restaurants offered items to make it easier to eat out. Subjects mentioned ordering salads with fat-free dressing or a grilled chicken breast with rice in order to eat healthy. Subjects felt if they did eat fast food, they had to compensate for this unhealthy eating to still follow the meal plan for the day. The subjects would like restaurants to become aware and more sensitive to the food needs of persons with diabetes. Again, this was reinforced as the overall theme that persons with diabetes had to eat differently than others. It appears that some subjects liked eating out, whereas others found it difficult as captured in these quotes: "They do not think about people that are in our situation and there is a lot of us," and "Restaurants are real good about changing now."

Social activities were mentioned as a situational factor that prevents healthy meal planning in 50% of the groups (Table 7). Social activities included when a family gets together for a meal, vacations at family member's house, and eating what the rest of the family cooks. Other social functions included ones that serve punch and cookies or items that are loaded with sugar and church dinners where the person with diabetes wants to taste all the food. The following quote summarizes the many comments made in this

area: “I have my worst time at holidays. You know when the kids come home and I cook for them – they don’t want this diet stuff. They want the stuff they were raised on.”

Dealing with family responsibilities was mentioned in 33% of the groups and would prevent self-care behaviors (Table 7). Responsibilities included taking care of their own parents, housework, and taking care of their spouse. Most subjects did not have children living in the home. Family responsibilities interfered with meal planning and the subjects had other things to do besides plan their meals. Subjects stated that meal planning was usually the last thing done and often did not get done. The subjects were tired and had chores to do around the house. This was especially true for subjects that were employed. The following quotes were typical: “I get too busy sewing”; “I’m tired you know and I just don’t want to”; and “I’ve got other things to do around the house.”

## Execution and Results

### Action Behavior

Action behavior correlates with the outcome assessment stage that follows an individual’s adoption of a behavior and includes the dimensions of commitment and time duration. Whereas, duration may be short or protracted and commitment may be minor or major (Burns, 1992). Most of the comments made by subjects about diet, exercise, and SMBG were perceived as of long-term duration and required a major commitment.

## Outcome

Outcome refers to the end result of the adopted behavior and how this result or present state compares to the goal or desired health status (Burns, 1992). The subjects in the present study were in an illness state and multiple items were discussed that monitor how they were doing (Table 8). Subjects stated that frequent thirst and frequent urination and fatigue were indicators of poor blood glucose control. Sometimes this motivated them to change a behavior to improve control and sometimes it did not.

SMBG was mentioned in 100% of the groups (Table 8). Some subjects realized they needed to do SMBG to know what was going on with their blood sugars and used SMBG to determine if they needed to exercise to reduce blood sugar. Subjects who did SMBG on a regular basis could not really state why they were so regular in this behavior. This was a typical comment: "I just do it because I have to." Only a few subjects stated they did SMBG more often when they ate sweets or were having complications like hurting in their feet. SMBG varied in the time of day and how often each subject did SMBG. Most subjects did not realize the importance of SMBG and did not know how it could be used. Subjects did not understand what to do if their blood sugar was consistently high and they would get discouraged and think, "Awe heck what's the use" and stop doing SMBG. Some subjects got tired of being reminded what their blood sugar values were because they did nothing if the values were not appropriate. Several subjects mentioned that health care professionals were uneducated in the area of SMBG and how to help the person with diabetes to use this data to improve control. Some subjects did not do SMBG because the physician had not yet told them they had to do it.

The barriers to SMBG were inconvenience, cost, and if blood sugar was consistently high or they were stressed they did not do SMBG. They stated Medicare or insurance helped some with the cost. A typical quote was: "It's inconvenient that you have to remember to take it everyday."

Another theme that was discussed was coded 'blood sugar' and was mentioned in all groups (Table 8). This was different than the comments about SMBG, as the blood sugar segments were discussing the actual blood sugar values. Subjects were aware that diet, their oral diabetes medications, physical activity, and stress all raise or lower blood sugar values. They also stated that other medications could raise or lower their blood sugar. Subjects stated they knew at what level of blood sugar they felt good. Subjects were not concerned nor knew much about HgbA1c. In fact, HgbA1c seemed to confuse them.

All groups mentioned low blood sugar. Subjects were more concerned and scared about low than high blood sugar. Several subjects did not know how low it had to be to get serious. They knew the signs and symptoms of low blood sugar, such as weakness, fatigue, and being hungry. Subjects stated if they took their medication and did not eat, this caused low blood sugar. Many subjects carried glucose tabs or candy with them at all times to be prepared for a low blood sugar reaction while others used orange juice, crackers, or peanut butter. No subject ate more at a meal or snack to prevent low blood sugar if they knew they were going to be active. In response to diet and blood sugar typical quotes were: "Well I think it goes hand in hand," "When we get in trouble we don't listen to the signals," and "Watermelon makes my sugar go sky high."

## Diabetes Meal Plan

The code word 'diet' was used in all focus groups and by all people interviewed (Table 9). There were many direct questions about the meal plan. Subjects stated following a meal plan to control their diabetes was the hardest part in controlling diabetes. They also stated that diet was important in controlling their diabetes and in maintaining health. Subjects stated that feeling better was the biggest motivator in following a meal plan.

Three of the groups (50%) discussed how they avoided eating sugar and was coded 'sugar phobia' (Table 9). Subjects stated how they only eat sugar free items and avoid sweets. These subjects wanted to avoid eating sugar completely but found sugar in everything when reading food labels. There was a lack of knowledge about sugar and overreactions about sugar, in general, and about fruit. The implication being they could not eat fruit because of all the sugar. Quotes that represent this theme include: "There must be a lot of sugar in watermelon," "There's sugar in everything," and "Anything that we eat runs our sugar up."

Some subjects discussed trying to eat a healthy diet. Some subjects cooked special diabetic meals for themselves, which was different than what the rest of the family ate. Others stated that their spouse ate the same meal. They commented on weighing their meat and eating smaller portions. Some subjects increased their intake of salads, vegetables, and fruits. Some commented on how they have cut out things like butter and sour cream from their diet. Some tried to follow low salt guidelines.

Subjects felt the ADA exchanges were confusing and did not know what exchanges meant. They had difficulty understanding that bread, milk, and a fruit exchange could be substituted for each other. Many have visited with a dietitian to learn about their meal plan and commented this was helpful. Some subjects stated they did not follow a meal plan because they could never catch on to it.

Barriers to following a meal plan in addition to eating out included eating too many starches. Meal planning and cooking for one was a barrier to following the diabetes self-management behavior of following the meal plan. Cutting down on meat portions seemed the hardest change for men.

#### Lack of Knowledge

Text segments were coded 'sickness' in 83% of the groups and was discussed because it was a direct question (Table 9). It was clear by their responses that they did not know what to do if they 'got sick.' The subjects did not mention checking blood sugar more often, drinking more fluids, or any other special tasks to monitor illness while having diabetes. Responses to the question consisted of going to bed or calling the doctor. This reflected a lack of knowledge on the part of the subjects.

Text segments were coded 'no knowledge' in 33% of the groups (Table 9). These text segments had to do with not knowing what HgbA1c was and not knowing how to use blood glucose data to improve diabetes control. Other segments included not knowing what was considered too high or too low blood glucose and not knowing what to do to

decrease blood sugar values that were consistently high. A typical comment was “Sometimes you don’t know what to do.”

One focus group (17%) had several text segments coded ‘misinformation’ and there was some misinformation in several other focus groups (Table 9). One subject stated that chromium picolinate was taken to lessen the craving for sweets. Subjects stated they could not have fruit because it had too much sugar in it or the only ready-to-eat cereal they could eat was Shredded Wheat because it did not have sugar or salt. The subjects also stated the only cooked cereal they could eat was Malt-O-Meal, because Malt-O-Meal did not have sugar or salt. Apparently there was a lack of knowledge concerning what affects blood sugar control, or the concept of carbohydrate and blood glucose levels.

### Exercise

Exercise was mentioned in all focus groups and interviews. Subjects knew it was important in diabetes control and that it could have a positive impact on their health and blood glucose control. Many subjects commented that their physician recommended exercise to control their diabetes. Exercise the subjects participated in included walking, running (treadmill), working in their yard or garden, and using a stationary bicycle. They shared with each other places to walk indoors, such as Wal-Mart or the Vo-Tech. Barriers to exercise included bad weather, other health problems, bad knees or backs, and laziness. Some knew it was important, they just did not do it. Several quotes included, “I try to exercise,” “A nice walk is like taking a shot of insulin,” and “Anything is better



than nothing.” Having diabetes restricted their exercise because of complications that may occur or limitations on physical activity they felt were needed. They did not go to the lake because of possible injuries to their feet and the potential for infection. There were several comments about if something happened to their feet, they might not be able to walk tomorrow. Others stated they used to be more physically active and could not be as active now. Quotes that captured this theme were “I used to direct basketball, baseball and softball, and call football and was very active. About the only thing I can do now is walk and call football and that’s about it. And that worries me.” and “Tomorrow I might not be able to walk. I don’t know!”

Table 1. Demographic characteristics of subjects (n=34).

Demographic characteristic	n	Frequency %
<b>Marital status</b>		
Never married	1	3
Married/living as married	21	66
Divorced	2	6
Widowed	8	25
<b>Level of education completed</b>		
Grades 1-8	0	0
Some high school (grades 9-12)	9	29
High school graduate/GED	4	13
Some technical school/some college	13	42
Technical school degree	0	0
College graduate	4	13
Graduate school	1	3
<b>Current work status</b>		
Employed full time	9	29
Employed part time	1	3
Homemaker	5	16
Unemployed	0	0
Retired	16	52
<b>Ethnic origin</b>		
White	29	91
African American/Black	0	0
Asian/Pacific Islander	0	0
Native American/Alaskan Native	0	0
Other (White and Native American)	3	9

Table 1. Continued.

Abstract of the I-ELISA.

	n	Frequency %
Total annual household income		
Less than \$10,000	4	14
\$10,000-\$14,999	3	10
\$15,000-\$19,999	4	14
\$20,000-\$24,999	5	17
\$25,000-\$29,999	0	0
\$30,000 and over	13	45
Number of adults in household (includes subject)		
1	9	29
2	21	68
3	1	3
Number of children in household (under 18)		
0	29	94
1	2	6

Table 2. Code words used to identify the antecedent construct of the EHBM.

Code Word	Antecedent Constructs	
	Health history %	Health importance %
Health care professional	100	
Chronic disease	100	
Complications	100	
Parent	67	
Family history	67	
Borderline	50	
Health importance		100

Table 3. Code words used to identify the social influence construct of the EHBM.

Code Word	Stimulator and Facilitator Constructs	
	Social influence %	
Spouse	100	
Children	100	
Grandchildren	100	
Diabetes support group	100	
Friends	83	
Siblings	67	

Table 4. Code words used to identify the perception and emotion constructs of the EHB.

Code Word	Perception %	Emotional response %
Restrictive	50	
Feeling sorry		50
Guilt/cheating		33
Fear of insulin		17

Table 5. Code words used to identify the belief construct of the EHB.

Code Word	Self efficacy %
Ability	83
Someone else	67

Table 6. Code words used to identify the action evaluation construct of the EHBM.

Code Word	Cost of the action %	Benefit of the action %	Value of the action %
Cost	100		
Schedule, plan, tricks		83	
Control			100

Table 7. Code words used to identify the disposition to action construct of the EHBM.

Code Word	Situational factors %
Cost	100
Eating out	83
Social activities	50
Family responsibilities	33

Table 8. Code words used to identify the execution and results construct of the EHB.

Code Word	Outcome %
SMBG	100
Blood sugar	100

Table 9. Code words that do not fit the EHB.

Code Word	%
Diet	100
Sickness	83
Sugar phobia	50
No knowledge	33
Misinformation	17

## DISCUSSION

Focus groups and individual interviews were conducted to provide insight into the social influence aspect of diabetes management in persons with Type 2 diabetes. Baric (1969) stated that people that were asymptotic and at risk of a disease needed encouragement from their social environment if the behavior was to be undertaken and maintained. Burns (1992) stated that preventative health care behavior was important to prevent disease and complications. The subjects in the present study had already been diagnosed with diabetes mellitus. The context of the present research project was to try to understand factors that would influence behaviors to prevent short- and long-term complications and improve the quality of life for persons with Type 2 diabetes. The use of the Expanded Health Belief Model guided the questioning and direction for the study and few studies have used the EHBM. Social support, the primary focus of this study, is an important construct in the EHBM and is needed to attain preventative health care behaviors (Burns, 1992).

The results of this study demonstrated that social support was an important part of diabetes control with some types of social support hindering or some helping their control. This agrees with Wallhagen (1999), who stated that social support could be supportive and non-supportive.

For most subjects, their spouse played a significant role in diabetes care. Some subjects were not married but had friends who played a significant role in their diabetes



care. Subjects stated that their spouse and/or friends were helpful the majority of the time. When not helpful, spouses and friends may have been unaware that their behaviors were a barrier to diabetes control. This agrees with Anderson et al. (1998) who found that lack of social support may be from the lack of understanding of diabetes by others. Patients with diabetes need to be taught to be assertive with friends and family to maintain diabetes control. Patients need to know how to deal with the situations that may occur in which they would be tempted to not follow diet guidelines. If patients know how to manage these situations, this may help reduce their sense of restrictiveness that was noted in the present study. If family and friends are educated, they can become a facilitator and not a barrier in diabetes control. As Maillet et al. (1996) found, social support had a strong impact, both positive and negative, on how subjects cared for their diabetes.

Among their children, the daughters were most involved in the subjects' diabetes care compared to sons. In fact, sons were never mentioned. The older children that were grown were the naggers. These children need to gain a sense of how to help in diabetes control so not hinder the subjects' adherence to diabetes guidelines. Children were more involved if they lived nearby. Grandchildren were a motivator for subjects to keep diabetes in control. The subjects wanted to see their grandchildren grow up. No research could be found about grandchildren or children and their role in social support and diabetes.

In a review by Fisher et al. (1998), they stated that social support has the most influence on the management of Type 2 diabetes. They suggested that marital satisfaction and reduced family stress lead to good disease management and that the

appropriate outcomes of patient behaviors must be a joint effort of patient and family. The present study also found that diabetes can be better managed with social support according to patient perception. This agrees with the findings of Quatromoni et al. (1994) as social isolation can hinder diabetes control. Fisher et al. (1998) also stated that a family approach will expand the time line for diabetes self-management interventions.

Findings of the present study agree with Schwartz et al. (1991) and Wdowik et al. (1997) who reported that support groups were perceived as beneficial to diabetes management. Subjects liked the idea that they were not alone. Patients with diabetes should be encouraged to seek diabetes support groups as another avenue of social support. Diabetes support groups may have the potential to influence the behavior norm.

Some articles included the support given by health care professionals in the construct of social support (Schwartz et al., 1991; Maillet et al., 1996; Wallhagen, 1999). The results of the present study revealed that some health professionals had incorrect knowledge about diabetes self-management. Health care professionals must spend adequate time educating themselves about diabetes and the appropriate self-care behaviors. It was disconcerting that the term 'borderline' diabetes was still being used by physicians. Patients must have the knowledge and skills to manage their diabetes (Beeney and Dunn, 1990) and the subjects in the present study relied on physicians for this knowledge. As Beeney and Dunn (1990) discovered, patients with Type 2 diabetes performed lower in diabetes knowledge than Type 1 diabetes patients.

Subjects in the present study relied heavily on the expertise of their physician to guide them in self-management. The physicians apparently did not have enough time to help or educate as much as the subjects needed. It seemed that physicians assumed

subjects knew the information or that they understood, but the present study found misinformation among these subjects in sugar content of foods and use of chromium picolinate. Information also seemed to be only in one direction, from physician to the subject, as most subjects did not seem to take initiative in their care and ask questions of the physician. The subjects seemed to be waiting to be directed by their physicians. They would not initiate self-care behaviors until they were told to do so by their physician.

Diet guidelines were important and subjects realized that diet was an important part of diabetes control. Many subjects in Woodward had already taken advantage of nutrition counseling from a registered dietitian. Subjects also revealed that diet was the most difficult and confusing self-care behavior to manage. Diet at any age is a difficult problem to deal with as Wdowik et al. (1997) concluded in a study with Type 1 diabetes subjects. Harris and Linn (1985) found subjects to be least compliant with diet. Quatromoni et al. (1994) stated that subjects were unable to maintain diet guidelines. Lloyd et al. (1993) revealed that there was greater adherence with dietary recommendations if social support among family and peers was present. For example, those who had a higher level of social support ate meals and snacks at recommended times and had a higher frequency of dietary adherence. Therefore, registered dietitians must incorporate social support in diabetes diet counseling.

## Limitations

The use of both focus groups and interviews could serve as a limitation. However, there were few differences found among the focus groups and individual interviews used in this study. Both methods were useful. Focus groups allowed for in-depth discussion among subjects, whereas, the individual interviews did not have the influence of peers. Focus groups and individual interviews used the same set of questions with little differences revealed, therefore, results were combined. This study was based on methods by Wdowik et al. (1997) in which they used focus groups and individual interviews.

The subjects were not randomly selected. They volunteered for the study and this does not reflect the overall U.S. population. However, results have been consistent with other studies.

All comments about a registered dietitian came from the Woodward subjects. These subjects knew the moderator, a registered dietitian, and had been to counseling sessions for diet instructions or had contact with the RD through the local diabetes support group. The individual interviews conducted did not reveal the mention of a dietitian and were not conducted by a RD or someone they knew.

The results of this study consisted of self-reported data from subjects. This self-report could serve as a final limitation.

Family involvement and social support in diabetes education are important. Patients need to be encouraged to bring their spouse or other family members to education sessions. If the patient is alone, a close friend may be available to be involved in the education process. Patients need to be taught how to deal with difficult situations when confronted by family and/or friends to not follow appropriate actions to keep diabetes in control.

Physicians need to understand the significance of social support and the influence it has on patients and adherence to recommendations. They need to talk to patients and take time to ensure patients have an adequate level of understanding of their disease and treatment plans. Physicians need to keep themselves educated and updated on diabetes terms and treatments to ensure appropriate education is relayed to patients. Physicians need to help facilitate control by referring diabetes patients to other health care professionals. Diet was the most difficult self-management behavior, therefore, physicians need to take advantage of nutrition counseling by registered dietitians. Another way to facilitate social support is to encourage participation in diabetes support groups. Patients also need to be encouraged to take initiative in their care by speaking up and asking questions of physicians.

One aspect of diet education that needs to be addressed is dealing with the pressures of social activities and holiday meals. When children come home to visit, following diet guidelines was more difficult. Registered dietitians need to give patients

guidelines so they know how to deal with these difficult situations and try to reduce their sense of restrictiveness.

Subjects were more concerned about low than high blood sugar. This could be because low blood sugar is acute, with symptoms, whereas, long-term complications are associated with high blood sugar. Patients with diabetes need to be educated on how maintaining normal blood sugar prevents short- and long-term complications.

The results of this study will be used in multiple ways. Instruments to measure the constructs of the EHBM, especially social support, will be developed and tested in a larger population of people with Type 2 diabetes. This will determine the extent of the EHBM constructs in this population. The development of measurement tools can be used to predict behavior and to measure changes in beliefs due to an intervention built around the EHBM. An intervention could be developed using results of this study and using the EHBM and social support as the framework of the intervention.

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1. Name  
2. Address  
3. City  
4. State  
5. Zip

APPENDIX A

RECRUITMENT HANDOUT



Department of Nutritional Sciences  
425 Human Environmental Sciences  
Stillwater, Oklahoma 74078-6141  
405-744-5040, Fax 405-744-7113  
Email [nutsci@okway.okstate.edu](mailto:nutsci@okway.okstate.edu)  
<http://www.okstate.edu/hes/nsi/nutsci.html>

June 10, 1998

Members of the Diabetes Support Group:

Melinda Brock, RD/LD and Kathryn Keim, PhD, RD/LD are conducting a study which involves being a participant in a focus group discussion. This is an investigation entitled "Learning about the social influence construct of the expanded health belief model in persons with type 2 diabetes mellitus." Focus groups are made up of a small number of people who are asked an organized set of questions in a consistent manner. Only people with Type 2 Diabetes between the ages of 45 and 75 are eligible to participate in this study. The focus group will take approximately 1.5 hours. Each participant will be paid \$15 at the completion of the focus group.

The focus group will be audio taped in order to make sure we have your exact answers to the questions. Typed transcripts will be made from these audiotapes. Only a subject number will be used in the transcript and your name will not appear in any reports.

The only potential risk is you may not want to tell us your weight. Since we are using subject numbers, this weight value will not be attached to your name.

This project is an individual Master of Science thesis project through the Nutritional Sciences Department at Oklahoma State University and independent of Woodward Hospital.

The purpose of the focus groups is to learn from you more about what you think about diabetes and diet so we can develop an educational program to help people with type 2 diabetes to control blood sugar and food intake.

If you are interested or would like more information contact Melinda Brock, RD/LD in Woodward, OK at telephone number 580-254-5199.

Thank you.



ATTENTION  
 PEOPLE WITH  
 TYPE 2 DIABETES:

40-70 Age  
 ...  
 ...  
 ...

APPENDIX B

RECRUITMENT FLYER

193 074 19

...

024

**ATTENTION  
PEOPLE WITH  
TYPE II DIABETES:**

**If you are  
45-75 Years of Age,  
you are invited to participate in a  
group discussion about diet,  
family support and attitudes.**

**You will be paid for your time!**

**If interested please contact:**

**Melinda Brock, RD/LD**

**580-254-5199**

**This is an individual  
Master's Degree project through  
Oklahoma State University and the  
Nutritional Sciences Department.**

OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD  
HUMAN SUBJECTS REVIEW

Form IRB-98

IRB #: RE-98-071

PROJECT TITLE: THE EFFECTS OF THE SOCIAL INFLUENCE CONSTRUCT OF THE  
DIETARY INTAKE IN PATIENTS WITH TYPE 2 DIABETES

PI: [Name]

PI: [Name]

PROJECT DESCRIPTION: [Faded text]

PROJECT PERIOD: [Faded text]

PROJECT LOCATION: [Faded text]

[Faded text]

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL

OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD  
HUMAN SUBJECTS REVIEW

Date: March 22, 1998

IRB #: HE-98-071

Proposal Title: LEARNING ABOUT THE SOCIAL INFLUENCE CONSTRUCT OF THE  
EXPANDED HEALTH BELIEF MODEL IN PERSONS WITH TYPE 2 DIABETES

Principal Investigator(s): Kathryn S. Keim, Melinda Brock

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT  
NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE  
APPROVAL PERIOD.

APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR  
PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE  
SUBMITTED FOR BOARD APPROVAL.

ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

---

**Comments, Modifications/Conditions for Approval or Disapproval are as follows:**

The reviewers can identify no significant risk to participants, and confidentiality issues appear to be adequately addressed. However, one reviewer had some concerns regarding item #6. Although a specific clearance may not be necessary for participation, he/she considers it most desirable that the attending physician who bears responsibility for patient management be aware and concur with his or her patients' participation in the study.

Signature



Chair of Institutional Review Board

cc: Melinda Brock

Date: March 23, 1998



APPENDIX D

FOCUS GROUP QUESTIONS

## Focus Group and Interview Questions

### I. DEMOGRAPHICS/OPENING QUESTION

1. As we go around the room, please give your name and briefly tell us a little about yourself.

*Probe:* For example, where do you live and how long have you had diabetes?

### II. FEELINGS ABOUT HEALTH

2. The first thing we want to talk about is how you feel about health. How do you feel about health?

*Probe:* On a scale of 1 to 10, how much value would you say you place on having good health? (1=little, 10=a great deal)

*Probe:* What are some of the causes of good or bad health?

*Probe:* To what extent do you think you do or could influence your own health status?

3. How do you feel about your ability to control your diabetes?

*Probe:* How likely is it you will someday get complications such as heart, kidney, or eye disease?

*Probe:* How debilitating do you think these might be?

4. Let's talk about when you might become concerned about your health. What are some reminders of the health risk associated with diabetes?

*Probe:* How often do you have low blood sugar?

*Probe:* When was the last time you were in the hospital?

*Probe:* How do these reminders make you feel?

### III. MOTIVATORS/FACILITATORS

5. What motivates you to follow a meal plan for diabetes?

*Probe:* Which would be more of an influence: fear of problems, wanting to please someone, or feeling better?

*Probe:* What does your family recommend in the way of a diabetes meal plan?

*Probe:* How much do your friends and family know about your diabetes meal plan?

#### IV. BARRIERS

6. What things cause you to not take actions to follow your meal plan?

*Probe:* How inconvenient is it to test your blood glucose as often as you think you should to see if your meal plan is working?

*Probe:* How often do work or social functions get in the way of planned exercise?

*Probe:* How often do family or spouse or friends sabotage your good eating intentions?

*Probe:* How often is lack of time or money an inhibiting factor on your intentions to follow your meal plan?

*Probe:* How often do you feel pressure to be like your friends or family in “normal” eating habits?

*Probe:* How do you deal with alcohol?

#### V. MANAGEMENT/SELF-EFFICACY

7. What are some aspects of diabetes meal planning you feel you are good at?

*Probe:* How good are you at planning and preparing appropriate meals and snacks?

*Probe:* How committed are you to exercise?

8. What are some aspects of meal planning which you feel others do better than you?

*Probe:* How well do you adjust your eating patterns?

*Probe:* How well do you take care of yourself on sick days?

*Probe:* How much of an effect does compliance to your meal plan have on blood glucose and HbA1c?

*Probe:* Do you ever feel it’s not going to make a difference if you do not follow recommendations?

*Probe:* Are there recommendations you can ignore and still have acceptable blood glucose levels?

## VI. COSTS/BENEFITS

9. What do you think about the costs vs. benefits of following a meal plan?

*Probe:* What are the benefits of following a meal plan?

*Probe:* What are the costs?

*Probe:* Is it worth it?

*Probe:* What are some options that would reduce the costs while enlarging the benefits?

## VII. SOCIAL/FAMILY SUPPORT

10. Of people around you, who has an influence on your ability to follow a meal plan?

*Probe:* Describe how your family, friends, coworkers support you in following your meal plan?

*Probe:* Describe how your family, friends, coworkers prevent you from following your meal plan?

*Probe:* What could they do to make it easier to follow your meal plan?

*Probe:* What would make you feel more supported in following your meal plan?

*Probe:* How do you feel if your family, friends, spouse are restrictive about what you eat?

*Probe:* How do you feel if you eat different foods than the rest of friends or family?

*Probe:* How do your family and spouse feel if they are eating a different meal?

*Probe:* What role do your children play in helping or hindering your ability to follow your meal plan?

*Probe:* In general, what role do "Diabetes Support Groups" play in helping you deal with diabetes?

WHAT WOULD MAKE YOU FEEL MORE SUPPORTED IN FOLLOWING YOUR MEAL PLAN?

1012  
1012  
1012

APPENDIX E

CONSENT FORM TO PARTICIPATE IN RESEARCH

## CONSENT FORM

Learning about the social influence construct of the expanded health belief model  
in persons with type 2 diabetes mellitus  
Nutritional Sciences and Family Relations and Child Development Department  
Oklahoma State University

"I, \_\_\_\_\_ hereby authorize or direct

Kathryn S. Keim or Melinda Brock, or assistants of her choosing, to conduct a focus group or individual interview."

1. Procedure: Focus groups are composed of a small number of subjects who are asked an organized set of questions in a consistent manner. An individual interview is when a person will ask you an organized set of questions in a consistent manner.
2. The focus group or individual interview will take approximately 1.5 hours.
3. The focus group or individual interview will be audio taped in order to make sure we have your exact answers to the questions. Typed transcripts will be made from these audiotapes. Only a subject number will be used in the transcript and your name will not appear in any reports. Only group information will be in the reports.
4. The only potential risk is you may not want to tell us your weight. Since we are using subject numbers, this weight value will not be attached to your name.
5. An educational program will be developed using results of this study to help people with type 2 diabetes mellitus to control blood sugar and food intake.
6. Subjects will receive \$15 for completing participation in the focus group or interview.

This is part of an investigation entitled "Learning about the social influence construct of the expanded health belief model in persons with type 2 diabetes mellitus". This project is an individual Master of Science thesis project and independent of Woodward Hospital.

The purpose of the focus groups and interviews are to learn from you more about what you think about diabetes mellitus and diet so we can develop an educational program to help people with type 2 diabetes mellitus control blood sugar and food intake.

"I understand that participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty after notifying the project director."

I may contact Kathryn S. Keim, in Stillwater, OK at telephone number 405-744-8293 or Melinda Brock, RD, LD, in Woodward, OK at telephone number 580-254-5199. I may also contact Gay Clarkson, IRB Executive Secretary, 305 Whitehurst, Oklahoma State University, Stillwater, OK 74078; telephone number 405-744-5700.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: \_\_\_\_\_ Time: \_\_\_\_\_(a.m./p.m.)

Signed:

\_\_\_\_\_

Signature of Subject

"I certify that I have personally explained all elements of this form to the subject or his/her representative before requesting the subject or his/her representative to sign it."

Signed:

\_\_\_\_\_

**Signature of Project Director or his/her authorized representative**

APPENDIX F

DEMOGRAPHIC INFORMATION SHEET



## Individual and Focus Group Interview Information

Date \_\_\_\_\_ Time \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Phone number \_\_\_\_\_  
-----

Subject Number \_\_\_\_\_

1. How old are you?

\_\_\_\_\_ years

2. How tall are you?

\_\_\_\_\_ feet \_\_\_\_\_ inches

3. What is your weight?

\_\_\_\_\_ pounds

4. What is your marital status? (Circle number)

1 Never married

2 Married/Living as married

3 Separated

4 Divorced

5 Widowed

5. Please indicate the level of education you have completed. (Circle number)
- 1 Grades 1-8
  - 2 Some high school (grades 9-12)
  - 3 High school graduate/GED
  - 4 Some technical school/some college
  - 5 Technical school degree
  - 6 College graduate
  - 7 Graduate school
6. Which of the following describes your current work status? (Circle number)
- 1 Employed full time
  - 2 Employed part time
  - 3 Homemaker
  - 4 Unemployed
  - 5 Retired
7. What is your race or ethnic origin? (Circle number)
- 1 White
  - 2 African American/Black
  - 3 Asian/Pacific Islander
  - 4 Native American/Alaskan Native
  - 5 Other (specify) \_\_\_\_\_
8. Which category best represents your total household income from all sources over the past year? (Circle number)
- 1 Less than \$10,000
  - 2 \$10,000 - \$14,999
  - 3 \$15,000 - \$19,999
  - 4 \$20,000 - \$24,999
  - 5 \$25,000 - \$29,999
  - 6 \$30,000 and over
9. Total number of persons in your household including yourself.
- \_\_\_\_\_ Number of adults
- \_\_\_\_\_ Number of children (under age 18)

APPENDIX G  
ANALYSIS WORKSHEET

## Analysis Worksheet Diabetes?

Date of Focus Group	Notable Quotes
Location of Focus Group	
Number and Category of Residents	
Moderator Name	
Asst. Moderator Name	

### Responses to Questions

Q2. The first thing we want to talk about is how you feel about health. How do you feel about health?

Brief Summary/Key Points	Notable Quotes

Q3. How do you feel about your ability to control your diabetes?

Brief Summary/Key Points	Notable Quotes

Q4. Let's talk about when you might become concerned about your health. What are some reminders of the health risk associated with diabetes?

Brief Summary/Key Points	Notable Quotes

Q5. What motivates you to follow a meal plan for diabetes? DU 312 61

Brief Summary/Key Points	Notable Quotes

Q6. What things cause you to not take actions to follow your meal plan?

Brief Summary/Key Points	Notable Quotes

Q7. What are some aspects of diabetes meal planning you feel you are good at?

Brief Summary/Key Points	Notable Quotes

Q8. What are some aspects of diabetes meal planning you feel others do better than you?

Brief Summary/Key Points	Notable Quotes

Q9. What do you think about the costs vs. benefits of following a meal plan?

Brief Summary/Key Points	Notable Quotes

Q10. Of people around you, who has an influence on your ability to follow a meal plan?

Brief Summary/Key Points	Notable Quotes



Q11. What would make you feel more supported in following your meal plan?

Brief Summary/Key Points	Notable Quotes

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DATE 10/10/01 BY 60322 UCBAW

CONFIDENTIAL

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## APPENDIX H

### CODE WORD DESCRIPTIONS

Code Word Descriptions

<u>Code Word</u>	<u>Definitions</u>
Medication	Talk about medication, what they are taking, what it does
Family history	Family members that have had diabetes, inheritance of the disease
SMBG	Self-monitoring of blood glucose, checking blood sugar
Health importance	If they think health is important and any comments related to this
Borderline diabetes	Any comments that they really do not have diabetes, some have been told this from others
Sickness	Diabetes causes them not to feel well or sick, Sick days
Chronic disease	Any mention of other chronic diseases or problems they also have
Blood sugar	Any talk of hypoglycemia or high blood sugar
Siblings	Mention of own siblings helping or not helping with something with diabetes
Children	Mention of own children helping or not helping with something with diabetes
Spouse	Mention of own spouse helping or not helping with something with diabetes

Friends	Mention of own friends helping or not helping with something with diabetes
Support groups	Mention of a support group helping or not helping with something with diabetes
Health care professional	Mention of a health care professional helping or not helping with something with diabetes
Parents	Mention of own parents helping or not helping with something with diabetes
Grandchildren	Mention of own grandchildren helping or not helping with something with diabetes
No knowledge, unclear	Mention of not knowing what to do for various problems related to their diabetes or confusion
Odd behavior	Mention of behaving differently any relation to diabetes
Sugar phobia	Mention of the fact they can not eat sugar and it is only the sugar they eat that increases blood glucose
Complications	Statements about the complications of diabetes
Control	Mention of no matter what they do there will be complications and statements about the state of their diabetes control
Schedule, plan, tricks	Statements about things that assist them in keeping blood sugar or diabetes in control

Social activities	Statements about how their social activities motivate or cause a barrier to following a meal plan
Family responsibilities	Statements about how their family responsibilities can motivate or be a barrier to following a meal plan
Feeling sorry	Mention of they can not do things like others because of the diabetes and feeling sorry for themselves
Cost	Statements regarding the cost of medication, diet, or anything related to diabetes care
Sharing information	Statements of sharing information on insurance, medicine, diet, etc.
Exercise	Statements about how exercise fits or does not fit into diabetes care
Guilt/cheating	Mention about guilt and cheating if they do not follow the guidelines
Stress	Mention of stress as related to diabetes
Fear of insulin	Statements about having to take insulin and that being they have “worse” diabetes if they have to take insulin
Ability to follow a meal plan	Statements about their ability to follow the diet, adjust, and plan to keep blood sugar in control
Misinformation	Statements that are wrong about diabetes care
Someone else	Statements about letting someone else take care of their diabetes

Eating Out

Statements about eating out and following a diabetes meal plan

Restrictive

Mention of the fact that having diabetes is restrictive

Diet

Mention about the diabetic diet and any statements associated with food

VITA  $\gamma$

Melinda Anne Brock

Candidate for the Degree of

Master of Science

Thesis: THE SOCIAL INFLUENCE CONSTRUCT OF THE EXPANDED HEALTH BELIEF MODEL HAS A ROLE IN THE CARE OF PERSONS WITH TYPE 2 DIABETES MELLITUS

Major Field: Nutritional Sciences

Biographical:

Personal Data: Born in Fairview, Oklahoma, on April 5, 1974 to Ray and Joyce Ryel.

Education: Graduated from Aline-Cleo High School, Aline, Oklahoma in May 1992; received Bachelor of Science degree in Nutritional Sciences from Oklahoma State University, Stillwater, Oklahoma in May 1996. Completed the requirements for the Master of Science Degree with a major in Nutritional Sciences at Oklahoma State University in May, 2001.

Experience: Completed dietetic internship at Oklahoma State University in 1997. Passed registration examination for dietitians in April 1997. Instructor for Certified Dietary Managers' Program, High Plains Institute of Technology, Woodward, Oklahoma from October 1998 to July 1999. Chief clinical dietitian at Woodward Hospital and Health Center, Woodward, Oklahoma from June 1997 to present.

Professional Organizations: North Central District Dietitians Association, Woodward High School Home Economics Program Advisory Board

