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A Comparison of Patient and Nurse Perception of Problem Areas Associated with Type 2 Diabetes

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A COMPARISON OF PATIENT AND NURSE PERCEPTION OF PROBLEM AREAS
ASSOCIATED WITH TYPE 2 DIABETES

by

Kelley Oglesby

A thesis submitted to the faculty of
Gardner-Webb University School of Nursing
in partial fulfillment of the requirements for the
Degree of Master of Science in Nursing

Boiling Springs

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Submitted by:

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Date

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Date

Abstract

The purpose of the study was to explore the difference in problem areas perceived and reported by patients with type 2 diabetes and registered nurses caring for patients with type 2 diabetes. Diabetes affects a large number of patients both physically and fiscally. Decreasing perception of problems by nurse case management intervention has the potential to adversely affect patients. A convenience sample of 20 patients and 10 nurses was obtained and completed the Problem Areas in Diabetes (PAID) questionnaire. Statistical analysis found a significant difference in perception of problems among patients and nurses.

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Chapter I

Introduction

Diabetes is a “group of diseases marked by high levels of blood glucose resulting from defects in insulin production, insulin action, or both” (CDC, 2011). Type 1 diabetes, previously called juvenile-onset or insulin-dependent diabetes, is a condition in which the body’s normal system of insulin production by the pancreas is destroyed. Type 2 diabetes, formerly called adult-onset, or non-insulin dependent, is marked by inadequate production and/or use of insulin. Diabetes during pregnancy is called gestational diabetes and may contribute to development of type 2 diabetes in the future.

Diabetes treatment consists of insulin administration or oral hypo-glycemic medications, along with a healthy meal plan and exercise. There are formal classes and diabetes educators in communities for education, intervention and support, as an adjunct to physician care.

Statement of the Problem

Type 2 diabetes is a tremendously costly disease, financially and physically. The Centers for Disease Control National Diabetes Fact Sheet (CDC, 2011), estimated the total medical cost at \$174 billion in 2007. Of that amount, \$116 billion was direct medical costs. There are almost 25.8 million diabetic patients in the United States, and of those, 90-95% are type 2. In 2006, diabetes was the 7th leading cause of death, but that number is likely inaccurate due to under-reporting. Diabetic patients are twice as likely to die as non-diabetic patients. The complications of diabetes include: heart, kidney, nervous system, and dental disease, stroke, high blood pressure, blindness, amputation, and pregnancy. Other complications include life-threatening chemical imbalances,

increased susceptibility to other illnesses like pneumonia and influenza, non-age related physical limitations, and depression. These complications can be reduced by controlling blood sugar, blood pressure, blood lipids, and participation in preventative care such as dilated eye exam, foot care and examinations, kidney checks, and recommended vaccines. Diabetes does not discriminate according to skin color, ethnicity, sex, and increasingly, age. For the purpose of this study, the researcher will focus on patients with adult-onset (over 18 years of age) type 2 diabetics.

Background

Support measures and educational resources needed for diabetic patients are often numerous and costly. Some barriers to those resources are “insufficient time for physicians to monitor and treat multiple clinical issues...and patients’ lack of knowledge of therapeutic goals, self-management skills and life style changes” (Gabbay et al., 2006, p. 29). Research has supported the role of a diabetes nurse case manager in the improvement of physical markers, like blood pressure (Gabbay et al., 2006, p. 33), but this research explores patient and nurse perception of problems associated with type 2 diabetes, as reported on the Problem Areas in Diabetes (PAID) questionnaire. As mentioned above, practitioners often are not able to fully discuss all areas of concern for patients, diabetic or not, so the same nurse case manager is in a great position to fill in the gap in support and assistance. The nurse role has come a long way from its origins in child care and breastfeeding, to a “highly trained and skilled professional who cares for the sick and infirm” (<http://www.suite101.com/content/what-is-a-nurse>, 2006). The characteristics given by Quan (2006), compassionate, good communicators, and patient, make nurses a perfect advocate for patients with type 2 diabetes who need more than the

standard office visit with the physician every three months. The results of this study have the potential to contribute to development of supportive measures for these patients.

Theoretical Framework

This study of patient and nurse perception of problems associated with type 2 diabetes is based on Nola Pender's Health Promotion Model (HPM). The HPM is based on the idea that the goal of nursing is to "help people care for themselves" (Tomey and Alligood, p 452). One the major assumptions of this model is that "health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their life-spans" (Tomey and Alligood, p 259). Pender's HPM was used as a framework for the research. Pender notes that "each person has unique personal characteristics and experiences that affect subsequent actions" (http://www.currentnursing.com/nursing_theory/health_promotion_model.html, 2011), and that these can be "modified through nursing actions." The goals of these actions are of course improvements in health, defined by Pender as "a positive dynamic state not merely the absence of disease". At the heart of this state is the patient's perception of current and desired health and the nurse's ability to positively affect it. See Appendix E for a model of diagram of Pender's HPM.

Purpose and Rationale

Nurses are positioned to affect a change in the management of this chronic disease and limit the progression of complications. The purpose of the proposed study is to identify patients and nurse's perception of the problem areas associated with type 2 diabetes. Results of this study have the potential to allow nurses to better address these problems, thereby empowering patients, and hopefully minimizing health care costs and

progression of complications. As previously mentioned, costs associated with care for patients with type 2 diabetes are phenomenal. A 2010 Gallup Poll finds that 16.4% of American adults are uninsured, up from 14.8% in 2008. With the uninsured increasing instead of decreasing, an arrest in disease progression could have a positive impact on reducing health care expenditures. Nurses are a valuable member of the health care team, and can assist primary care practitioners in the day-to-day and week-to-week, medical management of diabetes. As demonstrated in the literature, in some settings, nurse case management (CM) has decreased lab values, increased compliance with preventative screening, and increased satisfaction of care received by the physician/practitioner. The results of this study can contribute to the development of an intensive, focused approach by the nurse CM, in accordance with the practitioner plan, for a population of patients with type 2 diabetes. This approach by nurses can decrease direct and indirect health care costs, reducing the already huge burden.

Research question

The research questions used to direct this study are 1) what problem areas do patients with type 2 diabetes perceive and 2) what problem areas do nurses caring for patients with type 2 diabetics perceive?

Chapter II

Review of Literature

A randomized-controlled test conducted by Gabbay et al., (2006) studied the impact of nursing case management (CM) on blood pressure, hemoglobin A1c, and diabetic screening. A sample of 332 diabetic patients, age eighteen or over was identified by ICD-9 codes from two primary care clinics. The researchers found that nursing CM positively affected blood pressure, perception of problem areas in diabetes (PAID) scores, and screenings for eye, foot and kidneys. The researchers found no change in A1c and lipid values. Implications from this study are the importance and financial benefit from regular screenings and less emotional stress of diabetic patients when care is coordinated by a nurse CM. Researchers found that interventions based on an initial risk assessment, targeting more at risk patients, may be more cost effective.

In a structured review of literature, Sutherland and Hayter (2009) reviewed and presented evidence for the effectiveness of nursing CM in health outcomes for patients with three chronic conditions (diabetes, congestive heart failure, and chronic obstructive pulmonary disease). Eighteen studies were evaluated using a data extraction tool, and found positive health outcomes from nursing CM: objective clinical measures, quality of life and functionality, patient satisfaction, adherence to treatment, and self-care and service use. Implications for nurses are the positive impact of CM on all patients with chronic conditions, although further research may be necessary to target the specific population and interventions.

Pettitt, Wollitzer, Jonavic, He, Ipp, and the California Medi-Cal Type II Diabetes Study Group (2005), used a randomized, controlled clinical trial to analyze whether

intensive diabetes CM could prevent or delay diabetic retinopathy in patients with type 2 diabetes, versus traditional diabetes care. Using eye photographs and the Wisconsin Epidemiologic Study of Diabetic Retinopathy, researchers determined that CM, instituted before the onset of diabetic retinopathy, could diminish the risk of retinopathy. The study showed that CM, even for a short duration, may be sufficient to decrease the risk of retinopathy. Further studies may be beneficial to determine effectiveness of intervention in patients with more established diabetics.

A retrospective pre-post cohort study was conducted by Chang, Davis, Birt, Castelluccio, Woodbridge, and Marrero (2007), to explore the impact of nurse practitioner (NP) managed diabetes care coordination programs in the primary care setting and the use of telehealth or telephone intervention. Two hundred fifty nine veterans were enrolled in the program. Using the lab value hemoglobin A1c, researchers saw a 2% decrease in A1c for enrollees in the telehealth and telephone intervention group. The implications of this study are that NP based diabetes care management programs could potentially prevent many diabetes related complications. This is supported by the increase in A1c after disenrollment from the study.

Ingersoll, Valente, and Roper (2005) performed a systematic search for high quality studies that identified the most effective interventions to improve quality of life and health outcomes. The meta analysis presented the findings, graded, according to quality of evidence and recommendation based on that evidence. The researchers reviewed nine studies and determined that nurses can make a difference in outcomes and guide future care coordination models for diabetic patients. Further research in this area is important and should be a priority due to the disease burden, physically and financially.

A meta analysis by Alli et al. (2008) reviewed 66 randomized controlled trials to determine if patients with type II diabetes benefited from CM. The analysis of the studies revealed a decreased A1c, with more dramatic decreases seen when the CM could make medication adjustments and were involved in other areas of support, such as education and reminders. This summary, along with the landmark Diabetes Control and Complications Trial (DCCT, 1993), the American Diabetes Association (ADA), and the Centers for Disease Control (CDC), recognize the advantage of a team approach, including physicians, Nurse Practitioners, nurses, physician assistants, dieticians, pharmacists, and mental health professionals. This team of health care practitioners, with the CM, should plan, coordinate, and integrate care for the diabetic patient.

In a retrospective matched treatment-controlled study, Jia, Chuang, Wu, Wang, and Chumbler (2009) looked at the effect of telehealth services on preventable hospitalization use. The purpose was to study the effect of a Veterans Affairs (VA) Care Coordination Home Telehealth program to see if there was any decrease in preventable hospitalization use by veterans with diabetes. They reviewed VA automated inpatient, outpatient, and extended care databases for 774 veterans. What the researchers found was a significant decrease in hospital use during the first eighteen months due to diabetes complications, lower limb amputations, and uncontrolled diabetes. The implication here is that CM could deliver healthcare services, expertise, and information, over wide demographical and geographical distances to improve use of services, decrease preventable hospitalizations, and over time, decrease direct and indirect medical expenses. Further study with other chronic medical diagnosis may be necessary to determine and compare benefits of this home-based, telehealth program.

A randomized controlled trial in 2004 by Krein et al. was conducted to evaluate the effects of a collaborative CM intervention for patients with poorly controlled type II diabetes on glycemic control, intermediate cardiovascular outcomes, satisfaction with care, and resource utilization. Two hundred forty six veterans with A1c values greater than or equal to 7.5% were studied. The research instruments were blood pressure monitors, home glucose monitoring, physical exams, and patient surveys. The researchers found no effect on glycemic, lipid, blood pressure control, or resource utilization, but patients did report greater satisfaction with care and were more likely to have preventative eye exams and take a daily aspirin. The concern for these researchers is that the benefit of this type of collaborative, CM care may not be cost-effective for wide-spread, mainstream use.

Chapter III

Methodology

Setting

The settings for this study of patient and nurse perception of problems associated with type 2 diabetes was a private family practitioner's office and an emergency department in a small, rural, southern town. The family practitioner's office employs 12 health care professionals and office staff and sees an average of 55 patients daily. According to the 2010 United States Census, the population of the rural southern town in which the study was conducted was 55,342. The emergency department is associated with a medical center with a daily average census of 110. The emergency department (ED) employs 24 registered nurses.

Sample

The convenience sample consisted of 20 patients with type 2 diabetes and ten registered nurses. Participants were made available to the researcher by the practitioner's office staff during the data collection period. Each participant presented to the office for a regularly scheduled practitioner visit. The inclusion criteria for the patient sample for the study included: 1) type 2 diabetic patients, 2) over 18 years of age, 3) willingness to participate in the study utilizing the Problem Areas in Diabetes questionnaire, and 4) able to read and write English. Inclusion criteria for the sample of registered nurses include 1) experience caring for type 2 diabetes patients, 2) willingness to participate, and 3) able to read and write English.

Instrument

The research instrument was the Problem Areas in Diabetes (PAID) Questionnaire. The PAID is a measure of diabetes-specific emotional distress that was

developed by the Joslin Diabetes Center (1995). It is a self-administered questionnaire with 20 questions (items), rated from 0 (not a problem), 1 (minor problem), 2 (moderate problem), 3 (somewhat serious problem), to 4 (serious problem). The score for each question is summed and multiplied by 1.25 to yield a total score that ranges from 0-100. The higher the score, the more seriously problems are perceived. The PAID has demonstrated consistently high internal reliability (0.90) with sound (0.83) test-retest reliability.

Ethical Considerations

Prior to any data collection, Institutional Review Board approval was obtained from the university. Permission for the study was obtained from the practitioner's office manager. Each questionnaire was distributed with a letter of introduction and purpose of the study. No identifying information was requested or collected. Completion of the questionnaire implied consent. Cost factors for this study were limited to mailing costs for the envelopes and postage. Permission to use the Paid questionnaire was obtained from Dr. Garry Welch at Baystate University.

Procedure

The receptionist for the practitioner's office distributed the questionnaire to patients with type 2 diabetes while they were waiting in the lobby prior to their scheduled visit. Patients were asked to complete the questionnaire and return to the receptionist. The receptionist returned the questionnaires to the researcher by the United States Postal Service in the addressed, stamped envelope provided.

Letters of introduction and questionnaires were distributed to the nursing staff of the ED for completion. The questionnaires were collected by the researcher following completion.

Data analysis

Twenty patients with type 2 diabetes and 11 registered nurses completed the questionnaire. All 20 patient questionnaires were completed and included in the study. One nurse questionnaire was rejected from the study due to failure to complete all survey questions. Data was entered into a personal computer and analyzed utilizing the Statistical Packages of the Social Science 19.0 (SPSS). Data was analyzed and interpreted by means of frequency distributions, descriptive statistics, and an independent samples *t*-test.

Chapter IV

Results

In this study, a total of 31 participants returned the PAID questionnaire, with 30 complete questionnaires scored. Twenty patient questionnaires and ten nurse questionnaires were scored. Mean scores for the total PAID score for the 20 questions for both the patients with type 2 diabetes and the nurses was 38.33 (SD = 23.99). Nurses mean PAID total score was 46.63 (SD = 23.56) and patients mean PAID total score was 34.19 (SD = 23.68).

Table 1. Mean total scores on the PAID

PAID total score	M	SD
Nurse and Patient	38.33	23.99
Nurse	46.63	23.56
Patient	34.19	23.68

Table 2. Nurse mean scores on the three highest PAID items

Question	M	SD
Feeling scared when you think about living with diabetes	2.20	1.13
Uncomfortable social situations related to diabetes care	2.20	.78
Not knowing if your mood or feelings are related to your diabetes.	2.30	.94

Table 3. Nurse mean scores on the three lowest PAID items

Question	M	SD
Feeling satisfied with your diabetes physician.	1.20	1.03
Feeling alone with your diabetes.	1.40	1.17
Feeling that your friends and family are not supportive of your diabetes management efforts.	1.60	1.26

Table 4. Patient mean scores on the three highest PAID items

Question	M	SD
Not knowing if your mood or feelings are related to your diabetes.	2.35	1.53
Worrying about the future and the possibility of serious complications.	2.10	1.33
Feelings of guilt or anxiety when you get off track with your diabetes management.	2.05	1.15

Table 5. Patient mean scores on the three lowest PAID items

Question	M	SD
Not “accepting” your diabetes.	0.80	1.01
Feeling that your friends and family are not supportive of your diabetes management efforts.	0.60	1.05
Feeling unsatisfied with your diabetes physician.	0.45	0.61

Statistical analysis revealed nurses mean total scores on the PAID questionnaire was not statistically significantly higher, $t(28)=1.35, p=.18$). From mean scores it is evident that nurses perceived problems as more serious (46.63) than patients (34.19) but not statistically significantly so. Nurses and patients both agreed that “not knowing if your mood or feelings are related to your diabetes” was a problem. Nurses and patients both believed “feeling unsatisfied with your diabetes physician” and “feeling that your friends and family are not supportive of your diabetes management efforts” was not a problem. There were five items that were statistically, significantly different between the two groups, “uncomfortable social situations related to your diabetes care”, “not ‘accepting’ your diabetes”, “feeling that your friends and family are not supportive of your diabetes management efforts”, “coping with complications of diabetes”, and “feeling burned out by the constant effort needed to manage diabetes.”

Table 6. Nurse and Patient Mean Paid Scores for items that were statistically significantly different.

Question	Nurse		Patient	
	M	SD	M	SD
Uncomfortable social situations related to diabetes care.	2.20	0.79	1.25	1.21
Not “accepting” your diabetes.	1.80	1.32	0.80	1.01
Feeling that your friends and family are not supportive of your diabetes management efforts.	1.60	1.27	0.60	1.05
Coping with complications of diabetes.	1.90	1.29	0.95	0.95
Feeling “burned out” by the constant effort needed to manage diabetes.	2.10	1.10	1.15	1.18

Chapter V

Discussion

According to the study findings, nurses perceive problems associated with type 2 diabetes as more serious than patients with type 2 diabetes perceive them. Prior research has validated the positive effect of nurse case management on diabetic outcomes. Nurses need to clearly identify and understand what problems patients with type 2 diabetes find most problematic. Not surprising is the finding that nurses perceive perception of problems greater than patients. There may be several explanations. Nurses may magnify or minimize problems areas based on their experiences with illnesses other than diabetes. Patients may minimize problems associated with type 2 diabetes because they are not fully aware of the potential complications or areas that can be managed. Case management that is aligned with patient perception of problems has the potential to increase compliance with the patient's plan of care, decrease complications of diabetes, and improve patient outcomes, overall decreasing perception of problems.

Limitations

Although the PAID questionnaire is a reliable means of capturing reported problems, there are several limitations to this study. The first is the small sample size of both nurses and patients. Given more time and opportunity, a larger sample would have improved generalizability. A second limitation is the lack of demographic data (sex, age, race, reason for practitioner visit). This information would have allowed factors associated with patient perceptions to be explored. A third limitation of the study is the exclusion of type 2 diabetic patients without a primary care provider. Data collection took place in a private practice, serving primarily the insured population. Since so many of the population of the United States is uninsured, a sample that included uninsured patients

would have made the findings more applicable to the general population. Also, the sample of nurses surveyed on one day, one shift which did not fully capture a sample that is representative of the diverse population of nurses.

Implications for Further Research

In the future, it may benefit researchers to collect demographic and educational data from the patients, like, sex, age, time since diagnosis, formal diabetes education, and highest level of education. Research should be conducted in a less homogenous setting, yielding more accurate results. Demographic data regarding nurse's experience with patients with type II diabetes would allow exploration of factors contributing to their rating of perceptions.

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Appendix A

Problem Areas in Diabetes Questionnaire

Problem Areas In Diabetes (PAID) Questionnaire

INSTRUCTIONS: Which of the following diabetes issues are currently a problem for you?

Circle the number that gives the best answer for you. Please provide an answer for each question.

	Not a problem W	Minor problem W	Moderate problem W	Somewhat serious problem W	Serious problem W
1. Not having clear and concrete goals for your diabetes care?	0	1	2	3	4
2. Feeling discouraged with your diabetes treatment plan?	0	1	2	3	4
3. Feeling scared when you think about living with diabetes?	0	1	2	3	4
4. Uncomfortable social situations related to your diabetes care (e.g., people telling you what to eat)?	0	1	2	3	4
5. Feelings of deprivation regarding food and meals?	0	1	2	3	4
6. Feeling depressed when you think about living with diabetes?	0	1	2	3	4
7. Not knowing if your mood or feelings are related to your diabetes?	0	1	2	3	4
8. Feeling overwhelmed by your diabetes?	0	1	2	3	4
9. Worrying about low blood sugar reactions?	0	1	2	3	4
10. Feeling angry when you think about living with diabetes?	0	1	2	3	4
11. Feeling constantly concerned about food and eating?	0	1	2	3	4
12. Worrying about the future and the possibility of serious complications?	0	1	2	3	4
13. Feelings of guilt or anxiety when you get off track with your diabetes management?	0	1	2	3	4
14. Not "accepting" your diabetes?	0	1	2	3	4
15. Feeling unsatisfied with your diabetes physician?	0	1	2	3	4
16. Feeling that diabetes is taking up too much of your mental and physical energy every day?	0	1	2	3	4
17. Feeling alone with your diabetes?	0	1	2	3	4
18. Feeling that your friends and family are not supportive of your diabetes management efforts?	0	1	2	3	4
19. Coping with complications of diabetes?	0	1	2	3	4
20. Feeling "burned out" by the constant effort needed to manage diabetes?	0	1	2	3	4

Appendix B

Scoring the Problem Areas In Diabetes (PAID) Scale

Scoring the Problem Areas In Diabetes (PAID) Scale

The PAID is a measure of diabetes-specific emotional distress that was developed by the Joslin Diabetes Center, Boston. It was written originally in US English, but has later been translated into Spanish, Japanese, Dutch, German, Chinese, Croatian, Danish, and Portuguese.

The PAID total score ranges from 0 to 100. This scoring approach is similar to that used by other well-established measures such as the SF-36 quality of life measure. It is common for measures to be converted from raw scores to a 0-100 scale to make them more easy to work with and understand.

The 3 steps to scoring the PAID are as follows:

1. There are 5 response options available for each PAID question. These responses are given a value from 0-4 as can be seen from this example taken from the PAID questionnaire:

Not having clear and concrete goals for your diabetes care?

Not a	Minor	Moderate	Somewhat	Serious
problem	problem	problem	serious problem	problem
0	1	2	3	4

2. Sum the total obtained for all of the 20 PAID items
3. Multiply this total by 1.25 to produce a total score that ranges from 0-100

**For example, if the sum of 20 PAID item scores is 40, this is multiplied by 1.25 to get
a final PAID score of 50 on a range from 0-100**

If you have any questions about scoring the PAID please contact Dr Garry Welch at this
email address: Garry.Welch@BHS.org

Appendix C

Letter of Introduction-Nurses

I, Kelley Oglesby, am a student in the Master of Science in Nursing Program at Gardner-Webb University. I am doing a study to determine patient and nurse perception of problem areas associated with Type 2 Diabetes.

Your choice to participate in this survey is completely voluntary and will not affect your employment in any way. If you agree to participate in my study, please answer each question in the attached survey to the best of your abilities and return the survey to me before you leave the office today.

This survey is completely anonymous. Please do not put any indentifying marks on the survey. The information obtained from the survey will be aggregated so that a person's answers cannot be identified. The final results will be made available to all participants upon request following completion of the study.

The return of the survey will constitute your consent to participate in this survey. Thank you for your participation and your contribution to nursing research. Your return of the completed survey will be greatly appreciated.

If you feel you have been harmed in any way by completion of this survey or have any questions please feel free to contact me at 864-489-0544 or my professor, Dr. Rebecca Beck-Little at rbeck-little@gardner-webb.edu.

Sincerely,

Kelley Oglesby, RN, BSN

Appendix D

Letter of Introduction-Patients

I, Kelley Oglesby, am a student in the Master of Science in Nursing Program at Gardner-Webb University. I am doing a study to determine patient and nurse perception of problem areas associated with Type 2 Diabetes.

Your choice to participate in this survey is completely voluntary and will not affect your scheduled appointment or treatment you receive. If you agree to participate in my study, please answer each question in the attached survey to the best of your abilities and return the survey to me before you leave the office today.

This survey is completely anonymous. Please do not put any indentifying marks on the survey. The information obtained from the survey will be aggregated so that a person's answers cannot be identified. The final results will be made available to all participants upon request following completion of the study.

The return of the survey will constitute your consent to participate in this survey. Thank you for your participation and your contribution to nursing research. Your return of the completed survey will be greatly appreciated.

If you feel you have been harmed in any way by completion of this survey or have any questions please feel free to contact me at 864-489-0544 or my professor, Dr. Rebecca Beck-Little at rbeck-little@gardner-webb.edu.

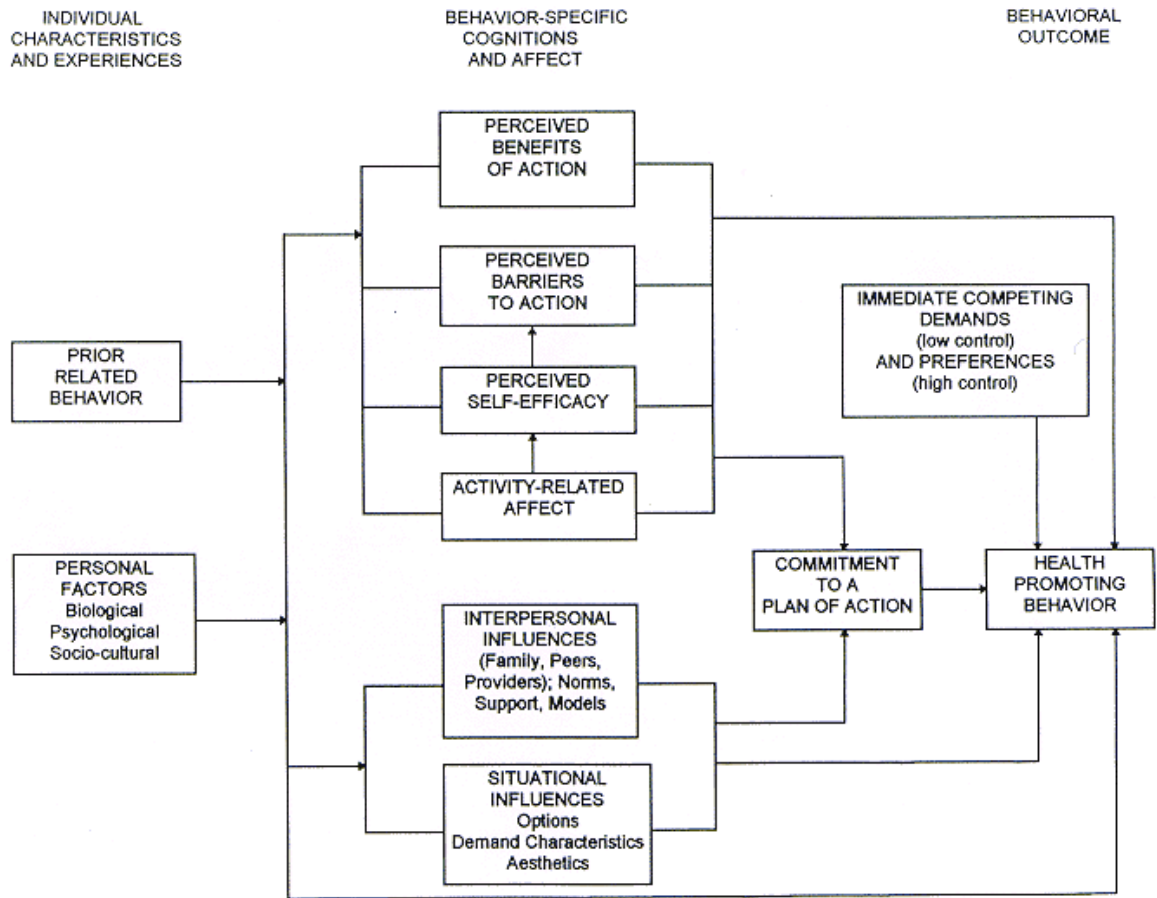
Sincerely,

Kelley Oglesby, RN, BSN

Appendix E

Nola Pender's Health Promotion Model

Nola Pender's Health Promotion Model



Revised Health Promotion Model