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Evaluation and Data Management Plan

Educational Program Evaluation

Step 1: Formative Evaluation. Describe how you will pilot test and evaluate each lesson. Describe how you will use the information to improve the program.

Behavior change theories can help change attitudes and beliefs regarding nutrition-improved outcomes. The Health Belief Model focuses on a health problem's perception, including perceived susceptibility, severity, benefits, and barriers.[1] Combining a behavioral theory approach with diabetes education in paper and digital options allows the best outcome for diabetic patients. The Diabetes Educational Plan will incorporate the Health Belief Model to reduce the risk of diabetes among women aged 18-44 receiving WIC benefits in South Carolina, as identified through the local community needs assessment.

Given the growing epidemic of diabetes and the number of WIC recipients diagnosed with diabetes during the South Carolina WIC community needs assessment, a diabetes prevention program has been identified as an area for educational opportunity.

The formative evaluation will focus on the following HBM theory constructs: risk susceptibility (a person's subjective perception of the risk of acquiring an illness or disease), risk severity (a person's feelings on the seriousness of contracting an illness or disease), benefits to action (a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease), barriers to action (a person's feelings on the obstacles to performing a recommended health action), self-efficacy (building skills in small incremental steps through short-term goal attainment), cues to action (stimulus needed to trigger the decision-making process to accept a recommended health action). The HBM learning strategies will also be incorporated into the educational plan: Persuasive Information about Positive Outcomes from Behavior, Reframe Perception of Barriers / Skills Training, and Action Goal Setting / Action Planning.

Each lesson will first be provided to a focus group of participants while the instructor is observed by a separate individual. Each participant will complete a pre-and post-questionnaire regarding the lesson's content, including a review and input of each lesson’s activities and expectations.

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[1]Boyle, M.A. *Community Nutrition in Action: Entrepreneurial Appr.*, 8th ed. Cengage; 2012.

In addition, the participants will rate the instructor and the material presented. This will allow the WIC Registered Dietitians to ensure the individual lesson objectives meet the educational plan and best achieve the program goals.

Program coordinators can use the feedback from the participant questionnaires and the observations of the instructors to adjust, adapt, clarify, or streamline the information in the lesson to meet the requirements and success of the educational plan.

Step 2: Complete the table below to describe how each lesson will be evaluated.

Lesson Objectives	**Assessment Method**	**Sample Questions - Multiple Choice**
Lesson 1: After learning about diabetes through pictures or charts, local statistics, and personal stories, clients will be able to explain what diabetes is and identify risk factors of diabetes to determine individual level of risk of developing diabetes.	Assess the diabetic knowledge of participants by asking them to complete a short survey before the lesson.	-What is diabetes? -Who is at risk for diabetes? -What is your individual of risk of developing diabetes based on the following scale: low (1 or less), medium (2-3), or high (4+) with the given list of risk factors?
Lesson 1: After completing an individual assessment (24-hour recall), clients will be able to assess intake and compare to the recommended Dietary Guidelines as needs improvement, adequate, or more than adequate.	Provide the participants with a survey to evaluate what they have learned about diabetes, how their 24-hour intake compares to the Dietary Guidelines, and ways to improve nutrient-dense food intake to lower the risk of diabetes. This will help evaluate the knowledge gained during the lesson.	-How does increasing your intake of nutrient-dense foods help to lower the risk of diabetes? -What foods would you eat to increase your nutrient-dense food intake? -What resource(s) can you use to find out if you are eating the right amount of nutrient-dense foods?

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Lesson 1: Following completion of individual assessments, clients will participate in a group discussion to provide at least three ways to increase nutrient-dense foods to align individual assessments with the Dietary Guidelines.	Provide the participants with a survey to evaluate what they have learned about diabetes, how their 24-hour intake compares to the Dietary Guidelines, and ways to improve nutrient-dense food intake to lower the risk of diabetes. This will help evaluate the knowledge gained during the lesson.	-What are three ways to increase nutrient-dense foods? -How do nutrient-dense foods help reduce the risk of diabetes? -How many nutrient-dense foods are recommended daily? -How many nutrient-dense foods are you eating daily?
Lesson 2: After participating in a group discussion regarding the benefits of increasing nutrient-dense food intake and foreseeable potential barriers, participants will brainstorm at least three ways to remove the perceived barriers.	Assess the participants' knowledge of nutrient-dense and calorie-dense foods by asking the participants to complete a short survey before the lesson.	-What is the difference between a nutrient-dense and calorie-dense food? -What are three barriers to nutrient-dense food consumption? -What are three ways to prevent potential barriers of nutrient-dense food consumption?
Lesson 2: After listening to the interactive presentation on the diabetic meal exchange and food labels, clients will be able to share their diabetic food exchange example and describe the difference between two food labels.	Provide the participants with a survey to evaluate what they have learned about barriers to consumption, use of the diabetic food exchange list, and understanding food labels in order to improve nutrient-dense food intake to lower the risk of diabetes. This will help evaluate the knowledge gained during the lesson.	-What are three key components of a food label? -How can reading food labels help you make healthy food choices? -Explain how to use the Diabetic Food Exchange List.

Lesson 3: After review and assessment of the 24-hour recall, clients will set a goal that meets the five criteria for a SMART goal (specific, measurable, achievable, relevant, and time-based) to increase nutrient-dense foods the following week.	Review the participants' SMART goals to evaluate what they have learned about setting SMART goals to improve nutrient-dense food intake to lower the risk of diabetes. This will evaluate the participants' knowledge gained during the lesson.	-What does the SMART goal acronym stand for? -What are the benefits of using a SMART goal? -Rate whether your SMART goal helped you to increase your intake of nutrient-dense foods: strongly agree (1) to strongly disagree (5).
Lesson 3: After setting an individual goal to increase nutrient-dense foods, clients will monitor in-take for at least one week using an assigned food app, receive digital technology reminders during the week, and share results with the group.	Review the participants' SMART goals to evaluate what they have learned about setting SMART goals to improve nutrient-dense food intake to lower the risk of diabetes. This will evaluate the participants' knowledge gained during the lesson.	-What was the SMART goal you developed? -How did your SMART goal help improve your intake of nutrient-dense foods? -Rate the ease of using the food app: easy (1) to difficult (5). -Rate whether you found the digital technology reminders to be helpful: strongly agree (1) to strongly disagree (5).

Step 3: Process evaluation. Complete the table below. Describe each component of your process evaluation.

Process Component	**Assessment Method**	**Sample Questions**

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Did the diabetes lessons reach the intended audience?	Student Survey / Student Attendance Sheet	-Are you a woman between the age of 18-44 receiving WIC benefits in South Carolina? -Do you currently have diabetes or pre-diabetes? -Do you have a close relative (parent or sibling) with diabetes?
Did the instructor meet the educational lesson objectives?* *Participants will be asked to answer these questions for each individual lesson.	Student Survey / Instructor Lesson Check Sheet	-Participants will review the lesson objectives and confirm (yes or no) as to whether the instructor covered met the requirements and objectives of the lesson. -On a scale of 1-5, was the instructor prepared for class: extremely prepared (1) to extremely unprepared (5). -Instructor will review the lesson check sheet to ensure all requirements of the lesson were met.
Did the student feel satisfied with the educational lesson(s)? Did the educational lesson(s) meet the student expectations?* *Participants will be asked to answer these questions for each individual lesson.	Student Survey	-On a scale of 1-5, how satisfied were you with the information provided within the lesson: extremely satisfied (1) to extremely dissatisfied (5). -On a scale of 1-5, how satisfied were you with the activities given within the lesson: extremely satisfied (1) to extremely dissatisfied (5). -What changes would you suggest to improve lesson 1, 2, and 3? -What changes would you suggest to improve the activities in lesson 1, 2, and 3?

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Step 4: Describe how you will use this data. How will this data help you understand the outcomes data?

This data will be used to determine what changes need to be made to the lessons and instructor training protocols.

Regarding each lesson, the student surveys will help to identify if additional detail is needed within each lesson plan, whether each lesson plan covers the appropriate amount of material for each lesson, if lessons need to be split into two separate lessons due to extensive content to be covered, or if time can be adjusted to accommodate the entire lesson and material. The data will also enable the program coordinators to determine whether students were satisfied with the lesson overall, the specific material covered, the activities included, and review the recommendations for improvement based on participant suggestions.

Regarding instruction, the student surveys will assist in instructor feedback, and instructor lesson check sheets will help ensure lesson objectives are met.

Statistical analysis will analyze attendance rates, participant demographics, lesson satisfaction, and instructor lesson preparation and implementation.

Step 5: List your behavior change goal and describe how you will assess pre- and post-intervention changes.

Behavior Change Goal	**Assessment Method**	**Sample Questions or Items to Evaluate**

After completing the South Carolina Diabetes Program, participants will increase nutrient-dense food consumption to a minimum of twice daily using the diabetic food exchange booklet and reading food labels.	Participants will complete a food survey prior to the first lesson and then again after the last lesson to determine if nutrient-dense food intake increased and if so, how much. Participants will also be asked if they used the diabetic food exchange booklet and food labels to increase nutrient-dense food intake.	-Comparison of initial food survey compared to final food survey to evaluate whether participants increased nutrient-dense food intake after completion of the diabetes educational program. Was there an increase? If so, how much? -Did participants use the diabetic food exchange booklet to increase nutrient-dense food intake? Why or Why Not? -Did participants read food labels when purchasing foods to help increase nutrient-dense food intake? Why or Why Not?

Step 6: How will you obtain this data? Discuss your analysis plan.

Data will be collected from participant food surveys completed before the first lesson and then again after the last lesson to determine if the nutrient-dense food intake increased. Surveys will be reviewed to calculate the amount of nutrient-dense food intake that needs improvement. Statistical analysis will analyze behavioral outcomes (increased nutrient-dense food intake) and variables representing HBM constructs (e.g., self-efficacy, cues to action).

Step 7. List the health concerns you hoped to change. Describe how you will assess pre- and post-intervention changes.

Health Status Goal	**Assessment Method**	**Sample Questions or Items to Evaluate**

Reduce Diabetes	Participants will have blood test (Hgba1c) done prior to the start of lessons and following the last lesson (within 1 week) to monitor for Hgba1c improvement.	-Hgba1c levels will be reviewed both for individuals and collectively and compared to original lab work taken prior to the first lesson to the final lab work taken after the last lesson. Lab ranges: Normal: level below 5.7% Pre-diabetes: level of 5.7% to 6.4% Diabetes: level of 6.5% or more Within the 5.7% to 6.4% pre-diabetes range, the higher your A1C, the greater your risk is for developing type 2 diabetes. -Was there a reduction of 55% to 30%? If not, what were the results?

Step 8: How will you obtain this data? Discuss your analysis plan.

Participants will have a blood test (Hgba1c) before the first lesson and following the last lesson (within one week) to monitor Hgba1c improvement. Statistical analysis will analyze individual and overall participant changes in Hgba1c values.

Program Planning Evaluation

Step 9. Add the evaluation and time frame for evaluation for each outcome in the program plan. Add evaluation components for each of the action steps and outcomes.

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Goal: Reduce the risk of diabetes in women ages 18-44 receiving WIC benefits in South Carolina.

Objective	**Action Steps**	**Time Frame for Action Steps**	**Evaluation Measure**	**Time Frame for Evaluation**
Outcome Objective 1 By March 2029, decrease the percentage of WIC recipients with diabetes or pre-diabetes from 55% to 30% in South Carolina measured by Hgba1c results.	-Develop a marketing plan to increase awareness of the importance of diabetes prevention (posters, handouts, and activities). -Develop and validate a software program to track recipients Hgba1c lab results. -Establish Hgba1c testing protocol for labs to be performed at local WIC offices.	-Marketing plan completed by May 1, 2024 and materials ordered by July 1, 2024. -Software program developed and validated by October 1, 2024. -Establish Hgba1c testing to be performed at local WIC office by November 1, 2024.	-Checklist to confirm specific parts of the marketing plan are completed within the expected time frame. (Outcome) -Checklist to confirm software program meets specific requirements to track recipients Hgba1c lab results within the expected time frame. (Outcome) -Checklist to confirm Hgba1c lab testing protocols are completed within the expected time frame. (Outcome)	-May 15, 2024 and July 15, 2024 -October 15, 2024 -November 15, 2024

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Process Objective for the Outcome 1 By April 2025, each WIC nutritionist in South Carolina will provide a minimum of 10 diabetic education activities per month (average of 2x week) where the primary audience is WIC recipients with diabetes or pre-diabetes as measured by monthly activity logs.	- Collaborate with local partners (such as The Department of Health and Environmental Control's Diabetes and Heart Disease Management and Prevention Division, American Diabetes Association, or Diabetes Free SC) currently providing nutrition education. - Develop diabetes education activities and materials. - Develop marketing materials to promote diabetes education activities.	- Contact local partner resources to coordinate and schedule nutrition education by August 1, 2024. - Diabetes nutrition activities and materials developed and approved by January 1, 2025. - Marketing materials developed and approved by March 1, 2025.	-Checklist to confirm each local partner was contacted, availability discussed, and scheduled time to work together on nutrition education within the expected time frame. (Process) -Checklist to confirm specific parts of the diabetes education activities and materials are completed within the expected time frame. (Process) -Checklist to confirm specific parts of the marketing materials are completed within the expected time frame.(Process)	-August 15, 2024 -January 15, 2025 -March 15, 2025

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Process Objective for the Outcome 1 By May 2025, offer and provide quarterly Hgba1c lab testing for WIC recipients with diabetes or pre-diabetes to establish baseline and routine monitoring.	-Collaborate with local lab company to perform lab testing at reduced/minimal cost to WIC recipients. -Develop flexible lab schedule for WIC recipients' blood draws. -Develop diabetes lab education and marketing regarding importance of regular lab work.	-Confirm lab company collaboration by December 1, 2024. -Develop flexible lab schedule to accommodate WIC recipients' blood draws by February 1, 2025. -Diabetes lab education and marketing materials developed and approved by March 1, 2025.	-Checklist to confirm local lab companies were contacted to obtain cost of lab testing at a reduced/ minimal cost for WIC recipients, lab cost compared, and local lab secured within expected time frame. (Formative) -Checklist to confirm lab schedule created to accommodate multiple lab appointments and follow up for WIC recipients' blood draws within expected time frame.(Formative) -Checklist to confirm completion of diabetes lab education and marketing materials are completed within expected time frame. (Formative)	-December 15, 2024 -February 15, 2025 -March 15, 2025

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Process Objective for the Outcome 1 By May 2025, implement a digital program for WIC diabetic recipients providing personalized nutritional meal guidance based on individual Hgba1c results.	-Identify partnerships and resources to provide materials, tools, funding, volunteers and technical assistance. -Develop training materials for digital program. -Develop marketing materials for digital program to encourage participation.	-Identify partner resources by December 1, 2024. -Digital program training materials developed and approved by February 1, 2025. -Digital program marketing materials developed and approved by March 1, 2025.	-Checklist to confirm partnerships and resources were identified and secured within expected time frame. (Formative) -Checklist to confirm training materials for digital program were completed within expected time frame. (Formative) -Checklist to confirm specific parts of marketing materials for digital program to encourage participation were completed within expected time frame. (Formative)	-December 15, 2024 -February 15, 2025 -March 15, 2025

Structure Objective for the Outcome 1 By December 1, 2024, obtain a grant to provide funding for the WIC recipients to receive diabetes education annually.	-Identify funding sources. -Develop a budget. -Write and submit a grant proposal.	-Identify funding sources by June 1, 2024. -Develop a budget by August 1, 2024. -Submit grant application by October 1, 2024.	-Checklist to confirm all possible funding sources were reviewed and secured within expected time frame. (Formative) -Checklist to confirm the necessary components of the budget are included and completed within expected time frame. (Formative) -Checklist to evaluate grant proposal meets the necessary requirements within expected time frame. (Formative)	-June 15, 2024 -August 15, 2024 -October 15, 2024

Step 10: Discuss the data management plan for assessment of the goal, all outcomes, and action steps. How will each piece of data be captured, and when?

Organize this section by type of evaluation: formative, process, and outcome.

Formative:

Program development will include the following action steps:

1. **Identify funding sources.** Seeking the appropriate funding for the benefit of the program. Evaluation: A checklist will be used to confirm all possible funding sources were reviewed and secured within the expected time frame.

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2. **Develop a budget.** The program coordinators and registered dietitians will provide input to determine the resources needed for the entire program to create an accurate budget. Evaluation: A checklist will confirm that the necessary components of the budget are included and completed within the expected time frame.

3. **Write and submit a grant proposal.** Requesting the necessary funds and approval to meet the program's needs is vital to establishing and implementing a successful educational program. Evaluation: A checklist will be used to evaluate whether the grant proposal meets the requirements within the expected time frame.

4. **Identify partnerships and resources to provide materials, tools, funding, volunteers, and technical assistance.** Local partnerships and volunteers can reduce the program's cost and unite community members to achieve a common goal. Evaluation: A checklist will be used to confirm partnerships and resources were identified and secured within the expected time frame.

5. **Develop training materials for digital programs.** With available digital program reference materials, program participants will be more likely to use the digital programs and have a positive experience doing so. Evaluation: A checklist will be used to confirm training materials for the digital program were completed within the expected time frame.

6. **Develop marketing materials for digital programs to encourage participation.** Creating excitement about the digital programs offered in a world of technology will target the program participants. Evaluation: A checklist will be used to confirm that specific parts of the marketing materials for digital programs to encourage participation were completed within the expected time frame.

7. **Collaborate with local lab companies to perform lab testing at reduced/minimal cost to WIC recipients.** Collaborating with a local lab company will help reduce program costs and provide a potential tax incentive to a local business. Evaluation: A checklist will be used to confirm that local lab companies were contacted to obtain the cost of lab testing at a reduced/minimal cost for WIC recipients, lab costs were compared, and the local lab was secured within the expected time frame.

8. **Develop a flexible lab schedule for WIC recipients' blood draws.** A flexible schedule will increase lab participation and compliance with timely lab draws. Evaluation: A checklist will be used to confirm the lab schedule created to accommodate multiple lab appointments and follow-up for WIC recipients' blood draws within the expected time frame.

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9. **Develop diabetes lab education and marketing regarding the importance of regular lab work.** Instilling risk susceptibility and perception through diabetes lab education and marketing will create participant cues to action. Evaluation: A checklist will be used to confirm that diabetes lab education and marketing materials are completed within the expected time frame.

Program Completion:

Evaluation measures will be based on program participant focus groups, surveys, and instructor observation. Each lesson will first be provided to a focus group of participants while the instructor is observed by a separate individual. Each participant will complete a pre-and post-questionnaire regarding the lesson's content, including a review and input of each lesson's activities and expectations.

In addition, the participants will rate the instructor and the material presented. This will allow the WIC Registered Dietitians to ensure the individual lesson objectives meet the educational plan and best achieve the program goals.

Program coordinators can use the feedback from the participant questionnaires and the observations of the instructors' lessons to adjust, adapt, clarify, or streamline the lesson information to meet the educational plan's requirements and success.

Process:

Program development will include the following action steps:

1. **Collaborate with local partners (such as The Department of Health and Environmental Control's Diabetes and Heart Disease Management and Prevention Division, American Diabetes Association, or Diabetes Free SC) currently providing nutrition education.** Working with community agencies can increase the visibility of the need for diabetes nutrition education and allow for a greater reach within the community. Evaluation: A checklist will be used to confirm that each local partner was contacted, availability discussed, and a time scheduled to work together on nutrition education within the expected time frame.

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2. **Develop diabetes education activities and materials.** When creating these items, it is essential to consider the potential program participants' cultures and educational levels. Evaluation: A checklist will be used to confirm that specific parts of the diabetes education activities and materials are completed within the expected time frame.

3. **Develop marketing materials to promote diabetes education activities.** Making the community aware of the diabetes education available increases awareness and participation. Evaluation: A checklist will be used to confirm specific parts of the marketing materials are completed within the expected time frame.

Program Completion:

Evaluation measures will be based on participant attendance and evaluation of lessons. Pre- and post-questionnaires (surveys) will be completed for each session, as well as attendance records and instructor lesson check sheets. Surveys completed after each lesson will ask the participants to rate their experiences using questions focusing on the lesson satisfaction, quality of information shared by the instructor, and usefulness of the information presented.

Outcome:

Program development will include the following action steps:

1. **Develop a marketing plan (posters, handouts, and activities) to increase awareness of the importance of diabetes prevention.** By continually informing the public and WIC recipients of the risks of diabetes, further attention can be brought to the disease, thereby increasing awareness for prevention. Evaluation: A checklist will be used to confirm specific parts of the marketing plan are completed within the expected time frame.

2. **Develop and validate a software program to track recipients' Hgba1c lab results.** Using an internal program to track lab values will make it easy for staff to access and be available for a measurement tool to track improvement. Evaluation: A checklist will be used to confirm that the software program meets specific requirements to track recipients' Hgba1c lab results within the expected time frame.

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3. **Establish Hgba1c testing protocol for labs to be performed at local WIC offices.** An established protocol creates consistent procedures and processes for the staff, and providing on-site lab services will allow for the most convenience and compliance with lab testing for program participants. In addition, having immediate access to results will benefit program coordinators. Evaluation: A checklist will be used to confirm that Hgba1c lab testing protocols are completed within the expected time frame.

Program Completion:

Evaluation measures will be based on behavior change goals. Participants will complete a food survey prior to the first lesson and then again after the last lesson to determine if nutrient-dense food intake increased and, if so, how much. Participants will also be asked if they used the diabetic food exchange booklet and food labels to increase nutrient-dense food intake. Participants will have a blood test (Hgba1c) done prior to the start of lessons and following the last lesson (within one week) to monitor for Hgba1c improvement.

Short-term goals include risks, benefits/barriers, attitudes, and food preferences; mid-term goals include increased intake of nutrient-dense foods; and long-term goals include decreasing diabetes disease risk factors and the prevalence of diabetes in women aged 18-44 receiving WIC benefits in South Carolina.

Results will be reviewed to determine if the lessons and activities successfully reduced the risk for diabetes in women aged 18-44 receiving WIC benefits in South Carolina.

References:

1. Boyle, M.A. *Community Nutrition in Action: Entrepreneurial Appr.*, 8th ed. Cengage; 2012.