Refining a Maternal Self-Care Intervention to Promote Family Health Using the Plan, Do, Study, Act (PDSA) Model

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INTRODUCTION

BACKGROUND

• Maternal health is a target for child obesity prevention efforts and there is a need for optimization of interventions
• The Plan, Do, Study, Act (PDSA) Model, a quality improvement process using rapid cycle testing to develop and refine interventions within healthcare settings, is less often used in health and nutrition studies

METHODS

INTERVENTION COMPONENTS

The HEROs Self-Care program was designed for mothers of preschoolers in rural areas to improve their own healthy eating, physical activity, and stress management. The program had 3 major components:

1. Content: Program content topics (self-care, healthy eating, PA, and stress management), activities, flow, and handouts
2. Delivery Methods: Meeting strategies, session duration, and an electronic binder (eBinder)
3. Digital Supports: Website, mobile applications, and an activity tracker

PLAN-DO-STUDY-ACT CYCLES

Participants and Data Collection

• Three PDSA cycles provided insights into intervention components and were assessed via group or individual interviews with:
  - Cycle 1: an expert panel (n = 8)
  - Cycle 2: a convenience sample (n = 5)
  - Cycle 3: target audience (n = 6)
• Interview data from each cycle was analyzed for emergent themes and intervention components were refined, as needed

Study Objective:
PDSA Cycles were applied during the development of the Healthy EnvironRonments (HEROs) Self-Care program optimize intervention components: content, delivery methods, and digital supports.

RESULTS

INTERVENTION COMPONENT REFINEMENT

Figure 1: PDSA Cycle 1 (Content) Refinement

Objective: To assess content

Group discussion with expert panel (n = 8)

More information needed for specific delivery methods

Verify workshop flow information, addition of select activities, and refinement of materials

“I like how you do [the mindful breathing activity] at the beginning so that you can just clear your mind as you come from your daily activity.”

Cycle 1 led to refinement to content including addition of activities, revision of handouts for literacy level, and inclusion of a group mindful listening activity

Figure 2: PDSA Cycle 2 (Content + Delivery) Refinement

Objective: To assess refined content and delivery methods

Group discussion and brief individual interviews with a convenience sample (n = 5)

Refinement in content activities as well as verification of delivery duration

“Just to be able to get together as a group and talk a little bit more would be good to see. It was just a nice group activity to be able to talk and have that time with the other moms... it would be cool to incorporate [more time].”

Cycle 2 led to refinements in workshop duration and activity order and verified that content and delivery methods (videoconferencing strategies) were acceptable

Figure 3: PDSA Cycle 3 (Content + Delivery + Digital) Refinement

Objective: To assess and refine content, delivery and digital supports

Cycle 3: target audience (n = 6)

Components have been optimized and are ready to be assessed with a larger sample

Full intervention was delivered as a pilot test. In-depth interviews with the target audience (n = 6)

“I thought they were all really good tools for what we’re all trying to accomplish.”

Cycle 3 led to the verification of digital supports, content, and delivery methods and ensured digital supports and delivery functioned as intended (especially in rural areas)

RESULTS (CONT.)

INTERVENTION COMPONENT REFINEMENT CONT.

Figure 4: PDSA Cycle 4 (Content + Delivery + Digital) Refinement

Objective: To assess refined content, delivery, and digital supports

Components have been optimized and are ready to be assessed with a larger sample

Full intervention was delivered as a pilot test. In-depth interviews with the target audience (n = 6)

“I thought they were all really good tools for what we’re all trying to accomplish.”

Cycle 3 led to the verification of digital supports, content, and delivery methods and ensured digital supports and delivery functioned as intended (especially in rural areas)

DISCUSSION

• PDSA cycles are an effective optimization tool to refine and improve intervention components, especially in traditionally difficult to reach populations such as mothers living in rural communities
• Through this optimization process, potential barriers to implementation and effectiveness can be avoided, but should be assessed over various conditions
• Refinement of intervention components through the PDSA optimization process may lead to enhanced uptake of targeted and desired health behaviors, improved effectiveness of interventions, and better cost-effectiveness

CONCLUSION

PDSA cycles may be an effective tool for the optimization of intervention components prior to full-scale implementation, potentially saving resources and resulting in more efficacious interventions.

Nutrition Educator Competencies: 8.7. Design or select strategies, activities and materials that are appropriate for diverse audiences; and 8.11. Revise the program based on process and outcome evaluation findings

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