Improving Glycemic Control Among Incarcerated Men

Group School of Nursing

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cy and Economics

The Problem

➢ Poorly controlled diabetes
- ➢ Complications
- ➢ Quality of life degradation
- ➢ Fiscal consequences

➢ HbA1c > 9 predictive of morbidity
- ➢ Reliable measure
- ➢ Healthy People 2020 Goal D-5.(Healthy People, 2013)

Healthy People, (2013)
Virdi, Daskiran, Nigam, Kozma, & Raja, (2012)
Hunt KJ, Gebregziabher M, Lynch CP, Echols C, Mauldin PD, Egede LE., (2013)

The Problem

➤ Barriers exist

    ➤ Poor health literacy

    ➤ Safety/security risks

    ➤ Suspicion R/T change

Participants

➢ Characteristics of the Subjects
  ➢ Inclusion Criteria:
    ➢ Diabetic inmates who:
    ➢ Wished to participate
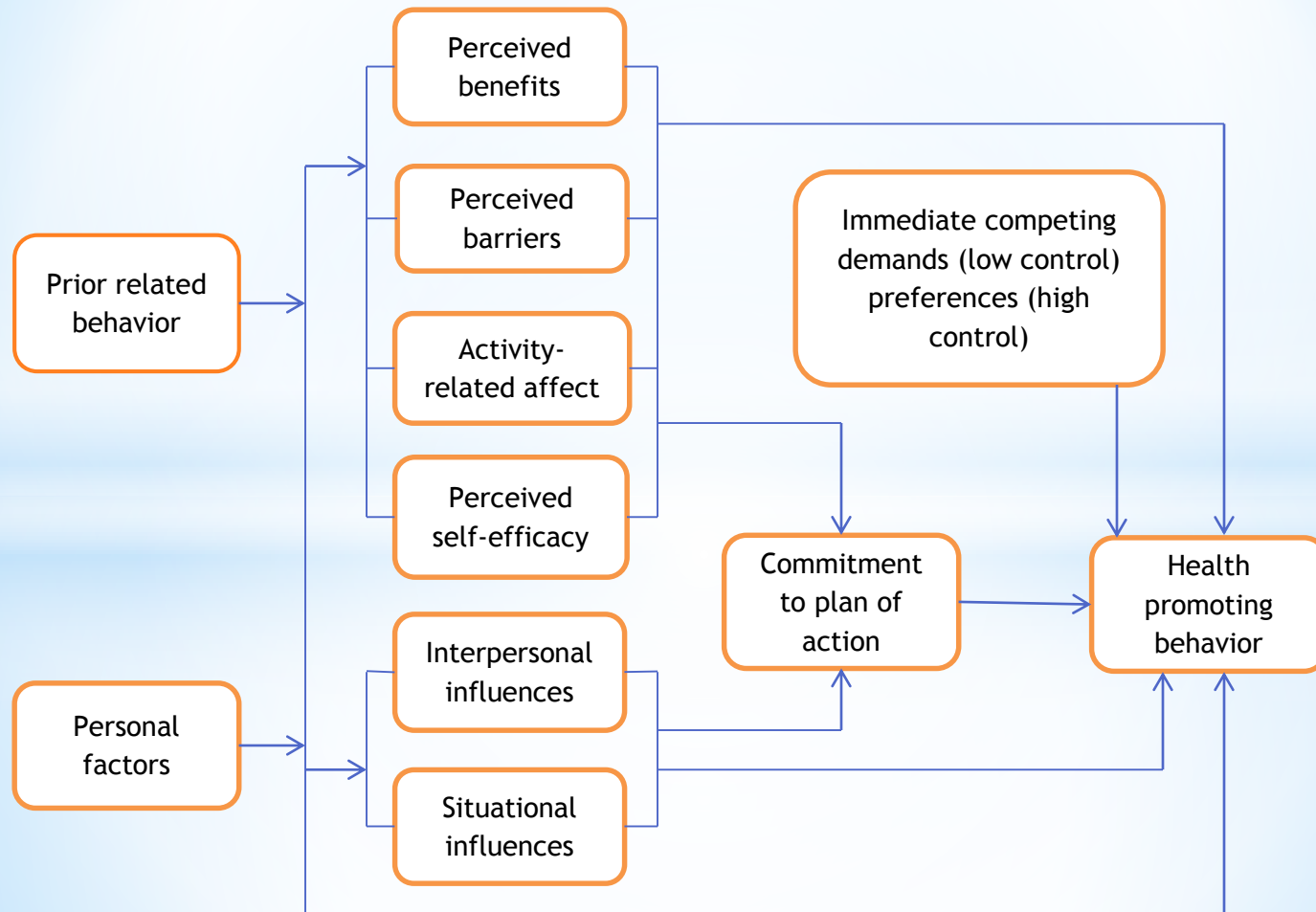   ➢ Had ordered finger sticks
  ➢ Exclusion criteria:
    ➢ Housed in ASU/SHU
    ➢ Declined to participate
    ➢ Gravely disabled
    ➢ Did not have ordered finger sticks
    ➢ Significant risk to security

Research Design: Health Promotion Model

➤ Integrates:

  ➤ Nursing/behavioral science perspectives

  ➤ Factors influencing health behaviors

➤ Explores motivating behaviors

➤ Competence or approach-oriented

Pender, Walker, Sechrist & Frank-Stromborg (1990)

Health Promotion Approach

Pender, Walker, Sechrist & Frank-Stromborg (1990)

Literature Review:

- *Integrated Management of Type 2 Diabetes and Depression Treatment*
  - Results: correlation between untreated depression, non-compliance with care, and elevated HbA1c levels.

- *Self monitoring Blood Glucose Levels, Medication Adherence & Glycemic Control*
  - Results: subjects who tested their own blood glucose had lower HbA1c.

Bogner, Morales, de Vries, & Cappola (2012)
Virdi, Daskiran, Nigam, Kozma, & Raja (2012)

Intervention/Action Items

➢ Local operational procedure
  ➢ Custody and MAC buy-in.
➢ Forms
  ➢ Agreement to participate.
  ➢ Depression screening tool.
  ➢ Blood glucose log.
  ➢ Chrono

Intervention/Action Items

➢ Nurse care coordinators

   ➢ How to use/care for assigned glucometer/supplies

   ➢ Sick day rules

   ➢ Follow up appointments

➢ Reality-based exchange

   ➢ Develop exchange measure for canteen foods/standard menu

      ➢ Pruno

      ➢ Alcohol consumption

      ➢ Spam/Top-Ramen

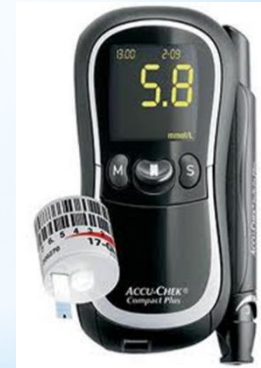# Intervention/Action Items

➢ Equipment

   ➢ Glucometer - security

      ➢ Provided at no cost to participant

      ➢ Permanently scribed with identifying information

   ➢ Testing supplies 1:1 exchange and drum-type

   ➢ Replacement pen device

Emphasize Common Needs

- Healthcare and custody staff
  - Increased workload
    - Future reduction in workload R/T improved long-term health
    - Less consumption of fiscal resources
- Staff and patient
  - Safe environment
  - Education
  - Support

Evaluation

Group 1 - Glucometer

Paired *t* test results

***p*-value and statistical significance:**

    The two-tailed *p*-value equals 0.2586

Confidence interval:

    The mean of Group One minus Group Two equals 0.387

      95% CI (-0.318 to 1.091)

Group 2 - Glucometer & Education

Paired *t* test results

***p*-value and statistical significance:**

    The two-tailed *p*-value equals 0.0018

Confidence interval:

    The mean of Group One minus Group Two equals 0.964

      95% CI (0.403 to 1.524)

Evaluation

Repeated measures ANOVA: Conducted to test for mean differences in HbA1c between Group 1 and Group 2.

Results: Statistically significant effect of time

➢ All participants experienced a reduction in HbA1c.
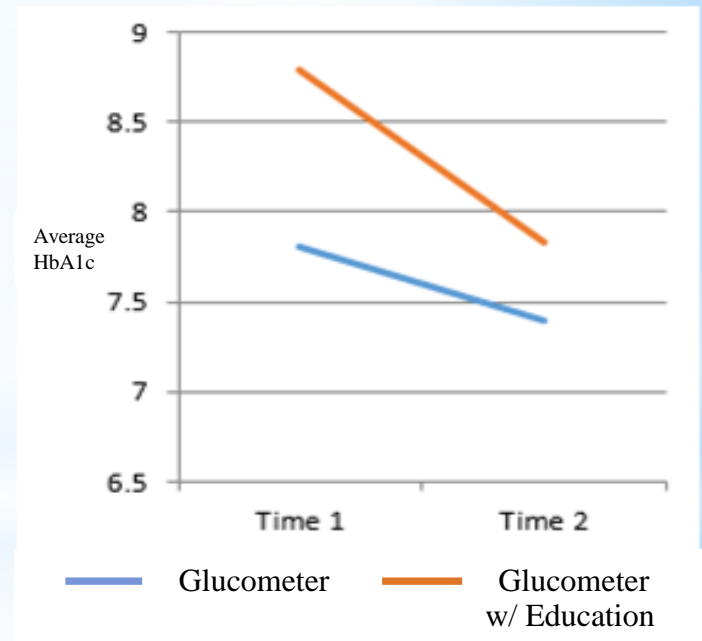
  $F (1, 35) = 10.42, p < .001.$

➢ After controlling for time, the difference between groups approached significance,

  $F (1, 35) = 3.23, p = 0.081.$

➢ Inspection of mean HbA1c level decrease:

  Group 1: mean difference = 0.40

  Group 2: mean difference = 0.96

Conclusion

➢ The provision of glucometers and testing material alone is not a catalyst for change in self-care behavior.

➢ When coupled with interdisciplinary education and support, a self-carry glucometer program increases autonomy and the likelihood of:

  ➢ Compliance

  ➢ Action on own behalf

  ➢ Changes in behavior

  ➢ Improvements in HbA1c

  ➢ Reduction in health care costs

References

Bogner, H., Morales, K., de Vries, H., Cappola, A. (2012). Integrated management of type 2 diabetes mellitus and depression treatment to improve medication adherence: a randomized controlled trial. *Annual of Family Medicine, 10(1),* 15-22.doi:10.1370/afm.1344

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Virdi, N., Daskiran, M., Nigam, S., Kozma, C.,& Raja, P. (2012). The association of self-monitoring of blood glucose use with medication adherence and glycemic control in patients with type 2 diabetes initiating non-insulin treatment. *Diabetes Technology and Therapeutics, 14*(9), 790-8. doi:10.1089/dia.2012.0047