Patient Centered Care: A Tool to Promote Empowerment and Medication Adherence Among American Indian Patients with Type 2 Diabetes

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Insulin receptor signaling pathway

Based on Marks Fig 11.14
Why Medication Adherence Matters

From The Cochrane Database of Systematic Reviews:

*Increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments.*

On average, 50% of medications for chronic diseases are not taken as prescribed.

Source: NIDDK

American Indian and Alaska Native (AI/AN) Diabetes Disparity
• 20.9% prevalence of diabetes in AI/AN vs. 8.9% national average.
• AI patients are disproportionately exposed to high rates of physical and mental health co-morbidities, poverty, and violence.

Medication Adherence is a Driver
• SUPREME-DM Study found AI/AN patients were significantly less likely to be adherent to their oral diabetes medications.

Patient Centered Care Can Significantly Effect Patient Adherence Behavior
• Poor physician communication is associated with a greater likelihood of missed insulin shots.
• Positive patient-physician interactions have been shown to increase patient adherence behavior.
Research Question

What is the relationship between patient-centered care, diabetes empowerment, and medication adherence among American Indian Patients living with Type 2 Diabetes?

Figure 1: Conceptual Model
Methods

• Community-based participatory research (CBPR) collaboration between the University of Minnesota (UMN) and five Anishinaabe (Ojibwe) communities in the upper Midwestern United States.

• Gathering for Health is a longitudinal cohort study

• This project is a cross-sectional sample using the cohort’s baseline data.
The Importance and Benefits of CBPR

• CBPR (also Tribally Based Participatory Research) has emerged as a critical guiding framework for ethical research with Indigenous communities.

• CBPR acknowledges the history and sovereignty of Indigenous communities so that the research benefits both sides of the partnership.

• CBPR is a conceptual orientation that shifts the role of researcher and subject to equal participants in a mutually beneficial process.
Study population

• Inclusion criteria were patients over the age of 18, with a diagnosis of T2D, living on or near one of the 5 partnering reservations, and who self-identified as AI.

• 194 participants were recruited via simple random probability samples from medical records.

• The study sample included 166 participants, all of whom were taking medication(s) as part of their diabetes treatment regime.
Patient Centered Care (PCC)

The Institute of Medicine defines PCC as:

*Providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.*

Measure: Patient Assessment of Care for Chronic Conditions short form (PACIC-SF).

Empowerment Definition

*Empowering patients provides them with the knowledge, skills, and self-awareness to effect change and has the potential to promote overall health and and maximize the use of available resources.*

Measure: Diabetes Empowerment Scale-Short Form (DES-SF).


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Figure 1: Conceptual Model
Adherence Definition

The extent to which the patient’s behavior matches agreed recommendations from the prescriber.

Measure: Morisky Medication Adherence Scale (MMAS)

Figure 1: Conceptual Model
Results: PACIC

<table>
<thead>
<tr>
<th>Table 1. Participant Endorsement (%) of Diabetes Care Provider Patient-Centered Care Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td>Asked for your ideas to make treatment plan?</td>
</tr>
<tr>
<td>Asked to talk about problems with medication?</td>
</tr>
<tr>
<td>Asked how visits with other providers were going?</td>
</tr>
<tr>
<td>Asked questions about your health habits?</td>
</tr>
<tr>
<td>Given a copy of your treatment plan?</td>
</tr>
<tr>
<td>Contacted after a visit to see how things were going?</td>
</tr>
<tr>
<td>Referred to a dietitian, health educator, or counselor?</td>
</tr>
<tr>
<td>Satisfied that your care was well organized?</td>
</tr>
</tbody>
</table>

Note: Endorsement of activities in the past 6 months.
Results: Bivariate Analysis

| Table 2: Descriptive Statistics and Bivariate Correlations for All Study Variables |
| 1. Gender (Female = 1) | 1.00  | 2. On or Off Reservation (0n = 1) | .02  | 1.00  | 3. Education Status | .13  | -.12 | 1.00 |
| 4. Age (years) | .03  | -.13 | .11  | 1.00  |
| 5. Patient Centered Care | -.06 | .10  | .00  | -.01  | 1.00  |
| 6. Medication Adherence | -.16* | .02  | .15  | .28** | .17*  | 1.00  |
| 7. Diabetes Empowerment | .01  | .05  | .12  | .02  | .16*  | .20** | 1.00  |

Mean (SD)%

55.73%  78.65%  1.55  (.91)  32 (12.2)  .84 (.67)  .53 (1.26)  .03 (2.90)

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).
Table 3: Test of Mediating Effects of Diabetes Empowerment on the Association between Patient-Centered Care and Medication Adherence

<table>
<thead>
<tr>
<th>Outcome Variable:</th>
<th>Model A (Step 1)</th>
<th>Model B (Step 2)</th>
<th>Model C (Step 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medication Adherence</td>
<td>Diabetes Empowerment</td>
<td>Medication Adherence</td>
</tr>
<tr>
<td></td>
<td>b(SE)</td>
<td>β</td>
<td>b(SE)</td>
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<tr>
<td>Reservation Status (On = 1)</td>
<td>.20(.23)</td>
<td>.06</td>
<td>.41(.52)</td>
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<tr>
<td>Gender (Female = 1)</td>
<td>-.47(.19)</td>
<td>-.19*</td>
<td>.01(.43)</td>
</tr>
<tr>
<td>Age</td>
<td>.03(.01)</td>
<td>.27***</td>
<td>.004(.02)</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>.21(.10)</td>
<td>.15*</td>
<td>.40(.23)</td>
</tr>
<tr>
<td>Patient-Centered Care</td>
<td>.29(.13)</td>
<td>.16*</td>
<td>.68(.32)</td>
</tr>
<tr>
<td>Diabetes Empowerment</td>
<td>.06(.03)</td>
<td>.15*</td>
<td>.</td>
</tr>
</tbody>
</table>

Figure 1: Conceptual Model

X. Patient Centered Care

M. Diabetes Empowerment

Y. Medication Adherence
Discussion

• Our study is the first to our knowledge to examine the effects of PCC and empowerment on medication adherence among AI patients with T2D.

• Providers can use PCC to promote empowerment among AI diabetes patients and potentially improve medication adherence rates.

• Physician efforts to value an individual patient’s cultural values, needs, and preferences strengthen the patient-provider relationship with potential to positively influence medication adherence behavior.
Limitations

• The observational, cross-sectional study design limits conclusions about causality of study variables.

• There are inherent challenges with measuring medication adherence.
Future Directions

• Investigate the role of other potential mediators that impact medication adherence.

• Develop models of diabetes care that incorporate AI cultural values, including those that involve stakeholders outside of the patient-physician dyad.

• Elucidate the specific mechanisms by which PCC impacts patient behaviors and health outcomes in diabetes mellitus and other chronic disease.
Clinical Relevance

**Care Plan**
1. Lists specific goals in behavioral terms
2. Lists likely barriers and plans to overcome them
3. Lists follow-up plans
4. Shared with all members of health care team

**Assessment of Self Management Beliefs, Behavior & Knowledge**

**Collaborative Goal Setting**

**Individually Tailored Strategies and Problem Solving**

**Identification of Personal Barriers and Supports**
Low-glycemic Food for Thought

✓ Ask for the patient’s ideas in order to make the treatment plan
✓ Ask to talk about any problems with medicines or their effects.
✓ Ask how visits with other doctors or providers were going.
✓ Ask questions, either directly or on a survey, about patient health habits.
✓ Has the patient been given a copy of the treatment plan.
✓ Has the patient been contacted after a visit to see how things were going.
✓ Has the patient been referred to a dietician, health educator, or counselor.
✓ Satisfied that the patient understands the care plan.
Acknowledgements

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References

Questions

Drugs don’t work in patients who don’t take them.

— C. Everett Koop, M.D.