The Association of Adherence and Health Behaviors With Health Status Among Patients With Type 2 Diabetes in Japan

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Study Question: Do you think that there is a significant association between adherence and health status, and what are the factors that influence this relationship?

OBJECTIVES
1. To determine the association between health behaviors (including smoking, alcohol use, diet, exercise, and weight status) and health status.
2. To determine the association between medication adherence and health status.
3. To determine the factors that influence this relationship.

METHODS

1. **Data Source:**
   - Data from the 2012 Japan National Health and Wellness Survey (NHWS) were used in the analysis. The NHWS is a national, Internet-based survey of adults in Japan (N=30,000).
   - Respondents of the NHWS are selected from an internet panel using a random stratified sampling framework.
   - Data collection is ongoing, and respondents complete an interview that is identical to that of the adult population based on governmental statistics.

2. **Measures:**
   - Only respondents who reported a diagnosis of T2D and reported currently using a prescription medication for their T2D were included (N=892).
   - Measures included:
     - **Health Status:** SF-12, which includes two subscales: Mental Component Summary (MCS) and Physical Component Summary (PCS).
     - **Comorbidities:** Charlson Comorbidity Index (CCI).
     - **Health behaviors:** Smoking status, daily smoking status, alcohol use, dietary intake, physical activity, obesity, and exercise.

3. **Statistical Analysis:**
   - Descriptive statistics were calculated on all adherence and health behavior measures.
   - Regression coefficients for health behaviors and adherence variables are presented below in Table 3.
   - Controlling for demographics and comorbidities, the strongest predictors of health status were with smoking (b=-1.15, p<.05), diet (b=-0.23, p<.05), and exercise (b=-0.08, p<.05).

RESULTS

- A total of 78.6% respondents were taking a prescription medication for their T2D.

Table 1: Demographic Characteristics of Patients With T2D in Japan Using A Prescription Medication

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean ± SD</th>
<th>Median</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (N=892)</td>
<td>62.1 ± 10.5</td>
<td>62</td>
<td>71.6 (70-73)</td>
</tr>
<tr>
<td>Sex</td>
<td>51.8 (50-53)</td>
<td>48.2</td>
<td>49.4 (50-51)</td>
</tr>
<tr>
<td>BMI</td>
<td>24.8 (24.0-25.0)</td>
<td>24.9</td>
<td>24.0 (24.0-25.0)</td>
</tr>
<tr>
<td>Education</td>
<td>8.3 ± 2.6</td>
<td>8.5</td>
<td>8.8 (8.0-9.0)</td>
</tr>
<tr>
<td>Income</td>
<td>¥ 3.2 ± 2.8 million</td>
<td>¥ 3.2</td>
<td>¥ 3.2 (¥ 2.8-¥ 3.6)</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>80.8%</td>
<td>80.8</td>
<td>Medicaid (78.0%), Medicare (2.3%), Private (9.6%), Other (1.9%)</td>
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Table 2: Health Behaviors of Patients With T2D in Japan Using A Prescription Medication

<table>
<thead>
<tr>
<th>Variable</th>
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<tr>
<td>Alcohol Use</td>
<td>0.023 (-1.845, 1.891)</td>
<td>0.946 (-0.29, 2.182)</td>
<td>0.031* (0.009, 0.054)</td>
</tr>
<tr>
<td>Feel Hassled</td>
<td>2.216* (0.392, 4.039)</td>
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<td>MCS PCS Health Utilities</td>
<td>0.767* (0.184, 2.716)</td>
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DISCUSSION

- These results suggest significant associations between adherence and health behaviors and health status. Specifically, smoking cessation, improved exercise, and weight reduction may result in significant health status improvements, aside from their well-known clinical benefits. Although forgetting medication was common (32.8%), patients who reported forgetting medications had significantly lower health status.

LIMITATIONS

- Since the relationships tested were cross-sectional associations, intervening on these variables may result in the same hypothetical causal impact in health status. Although the CCI includes a broad selection of comorbidities, unknown comorbidities may influence the associations tested.

REFERENCES


Poster Presented at the ISPOR 19th Annual International Meeting │ May 31, 2012 │ Boston, MA, Canada

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Figure 1: Frequency of Encouragement of MMAS-8 Home Among Patients With T2D in Japan Using A Prescription Medication

Table 3: Regression Coefficients of Health Behaviors and Adherence Predicting Health Status Among Patients With T2D in Japan Using A Prescription Medication

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