Adherence issues in Diabetes Treatment: How can Acceptance Measurement Help Understanding Patients’ Concerns and Working on Solutions?

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BACKGROUND
- Management of chronic conditions requires the patients to take long-term treatments.
- Lack of adherence and persistence are major barriers to treatment efficacy.
- Measuring patients’ adherence of their medication can help better understand and predict patients’ behavior towards treatment.

OBJECTIVES
This study aimed at evaluating the levels of acceptance and adherence of type 1 and type 2 diabetes patients (T1D and T2D) in real life using a patient online European community.

METHODS
Study design
- An observational, cross-sectional study was conducted through the French, English, German, Spanish and Italian Carenity platforms between Oct 2015 and Feb 2016.
- The Carenity platform is a global online patient community in which both patients and caregivers, concerned by a chronic disease, can share their experience, find basic tools for health follow-up and contribute to medical research by participating in online RAE studies.
- Patients included in this analysis were adults suffering from T1D or T2D and currently receiving treatment.

Assessments
- All patients connecting to the Carenity platform were invited to complete an online questionnaire including:
  - Questions on demographics, chronic disease and medication.
  - The Acceptance by the Patients of their Treatment (ACCEPT®) questionnaire: 25 items covering six dimensions corresponding to treatment-attributes.
  - The Morisky Medication Adherence Scale (MMAS-8): 8-item scale with a score ranging from 0 to 8 with the following interpretation: 0 to <6 (low adherence), 6 to <8 (moderate adherence) and 8 (high adherence).

Statistical analysis
- Descriptive statistics were used to describe the patient population and the ACCEPT® and MMAS-8 scores.
- The distribution of adherence and acceptance scores across T1D and T2D treatments was analysed.
- Pearson correlations between the Acceptance/General score, MMAS-8 adherence score and ACCEPT treatment-attributes scores were calculated.

RESULTS

Population (Figure 1 and Table 1)
- Among the 1,213 diabetic patients included in the analysis, 267 had T1D and 946 had T2D.
- 116 patients excluded: 49 had no chronic disease treatment reported.
- 67 had other chronic disease treatment than for diabetes.
- Gender (% male) 39% 53% 50%
- Age (% years) 21% 28% 29%
- Total time diagnosis (% >5 years) 21% 31% 30%
- Blood glucose lowering drugs (% / Insulins & analogues (%)) 68% / 80% 70% / 22% 68% / 22%

Level of adherence: Per diabetes type and treatment class (Figure 2)
- Similar adherence level regardless of diabetes type or class of treatment was observed.
- Level of acceptance: Per diabetes type and treatment class (Figure 3)
- T1D patients showed better general acceptance than T2D.
- T2D patients showed better scores than T1D patients indicating better acceptance in Medication Inconvenience, Regimen Constraints and Long Term treatment-attributes.
- T2D and T1D were comparable in terms of Acceptance of their treatment Side Effects.
- The domain where patients reported lowest scores was: Acceptance/Long-term treatment for T1D and T2D

Level of acceptance: Per treatment class (Figure 4)
- Patients taking blood glucose lowering drugs showed lower general acceptance and lower effectiveness acceptance than patients taking insulin or analogues.
- In contrast, they showed better Acceptance of their Medication Inconvenience, Long Term, Regimen Constraints and Side Effect than those taking insulins or analogues.

CONCLUSIONS
- Acceptance and adherence levels were relatively high in diabetic patients but far from ideal.
- General Acceptance level was higher in patients receiving Insulin and analogues than in patients receiving blood glucose lowering drugs.
- But no significant difference in Adherence levels.
- Insulin and analogues treatments were better than blood glucose lowering drugs in Acceptance/Effectiveness.
- Blood glucose lowering drugs were better than insulin and analogues in Acceptance/other attributes (Medication inconvenience, Long-Term, Regimen constraints, Side Effects).
- Acceptance and Adherence are two related but different constructs.
- Acceptance levels showed more contrasts than Adherence levels.
- In diabetes, general acceptance was driven by efficacy, while current adherence was driven by regimen constraints.

REFERENCES

Acknowledgments
The authors thank all patients who participated in this study.

Table 1: Description of the population (N=1,213)

<table>
<thead>
<tr>
<th></th>
<th>T1D (N=267)</th>
<th>T2D (N=946)</th>
<th>Total (N=1,213)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (% years)</td>
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</tr>
</tbody>
</table>

Table 2: Key Pearson correlation coefficients (N=1,213)

<table>
<thead>
<tr>
<th></th>
<th>Adherence Score</th>
<th>Long Term</th>
<th>Side Effect</th>
<th>Regimen Constraints</th>
<th>Effectiveness</th>
<th>Acceptance/Long-term</th>
<th>Acceptance/Side Effect</th>
<th>Acceptance/Regimen Constraints</th>
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<td>Correlation between</td>
<td>0.21</td>
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<td>0.46</td>
<td>0.61</td>
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