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

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BACKGROUND

- Management of most chronic conditions requires the patients to take long-term treatments.
- Lack of adherence and persistence are major barriers to treatment efficacy.
- Patients' behaviour and attitude toward their treatment are hypothesised to result from their complex evaluation of the risk-benefit ratio of their treatment.
- Measuring patients' acceptance of their medication can help better understand and predict patients' behaviour 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[1].
- The Carenity platform is a global online patient community in which both patients and carers, 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 RWE 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[2,3]:
  - o 25 items covering six dimensions corresponding to treatment-attributes.
  - o Scores range from 0 to 100 with higher score indicating greater acceptance.
- The Morisky Medication Adherence Scale (MMAS-8®)[4]:
  - o 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.

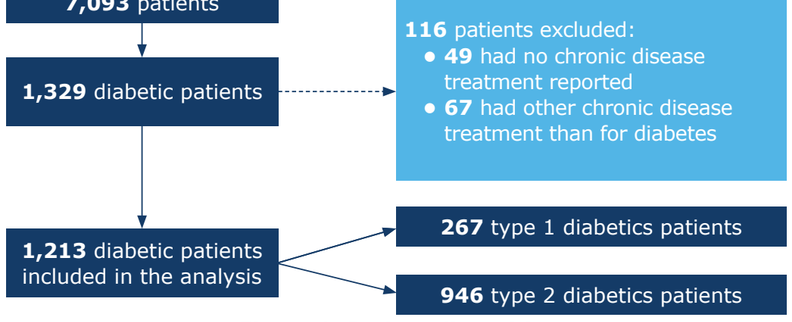


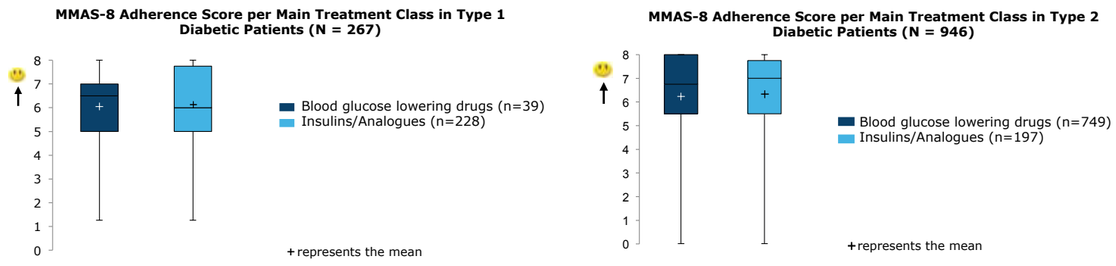
Figure 1: Patient disposition

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

	T1D (N=267)	T2D (N=946)	Total (N=1,213)
Gender (% male)	39%	53%	50%
Mean age (years)	48.7	61.4	58.6
Time since diagnosis (%< 5 years)	19%	31%	28%
Blood glucose lowering drugs (%) / Insulins & analogues (%)	15% / 85%	79% / 21%	65% / 35%

Level of adherence: Per diabetes type and treatment class (Figure 2)

- Similar adherence level regardless of diabetes type or class of treatment was observed.

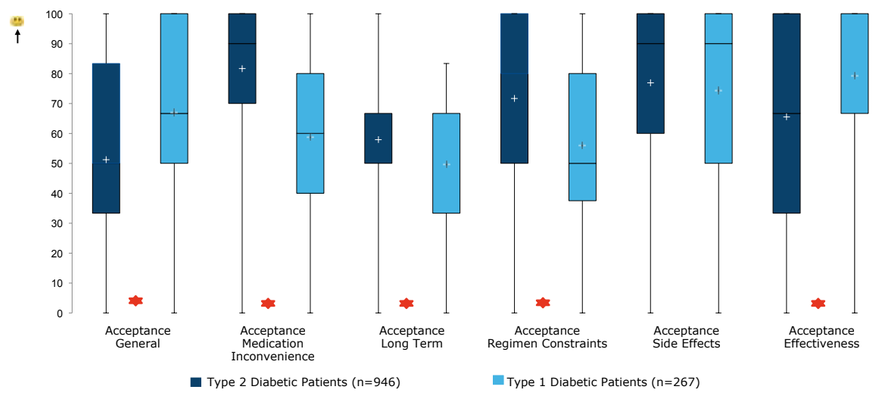


Box = interquartile (Q3-Q1); middle bar= median; upper and lower bars= observed min and max values

Figure 2 : MMAS-8 adherence scores in diabetic patients (N=1,213)

Level of acceptance: Per diabetes type (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:
  - o Acceptance/Long-term treatment for T1D and T2D

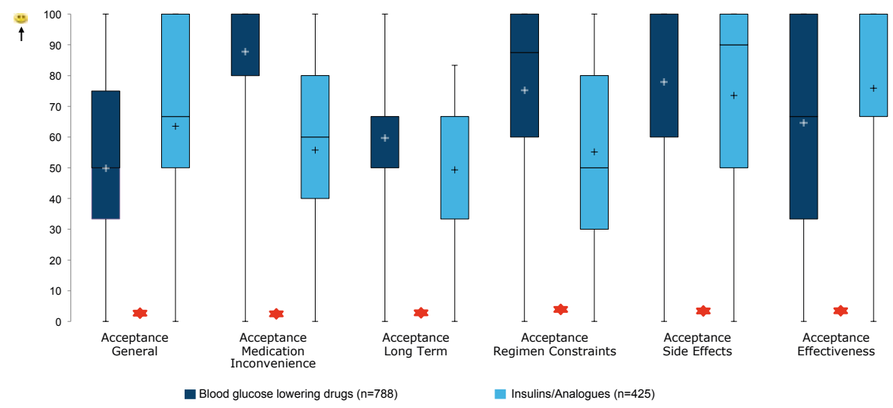


Box = interquartile (Q3-Q1); + = mean; – = median; upper and lower bars = min and max values. Red stars indicate significance (p<0.05).

Figure 3: Acceptance General score and ACCEPT treatment-attributes scores per diabetes type (N=1,213)

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 insulins 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.



Box = interquartile (Q3-Q1); + = mean; – = median; upper and lower bars = min and max values. Red stars indicate significance (p<0.05).

Figure 4: Acceptance General score and ACCEPT treatment-attributes scores per treatment class (N=1,213)

Link between general acceptance, adherence and ACCEPT treatment-attributes (Table 2)

- General Acceptance was primarily correlated with Acceptance/Effectiveness (r=0.61).
- Adherence was more correlated with the practical attributes (i.e. Regimen Constraints) than by the perception of a treatment's effectiveness.
- Correlation between General Acceptance and Adherence was found to be significant, but low (r=0.30).

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

	Acceptance/Medication Inconvenience	Acceptance/ Long Term	Acceptance/Regimen Constraints	Acceptance/Side Effects	Acceptance/ Effectiveness	**Acceptance/ General Score**	**Adherence Score**
Acceptance/General Score	R = 0.06 p=0.04	R = 0.26 p<0.0001	R = 0.24 p<0.0001	R = 0.29 p<0.0001	**R = 0.61** p<0.0001	1	R = 0.30 p<0.0001
Adherence Score	R = 0.21 p<0.0001	R = 0.37 p<0.0001	**R = 0.46** p<0.0001	R = 0.15 p<0.0001	R = 0.28 p<0.0001	R = 0.30 p<0.0001	1

Notes: Correlations were based on a sample that varied between 1,201 and 1,213 patients. The dimension Acceptance/Numerous Medication is not represented since an ordinal variable.

Correlation between 0 and 0.2
Correlation between 0.2 and 0.4
Correlation between 0.4 and 0.7

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.
  - o 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.
  - o Acceptance levels showed more contrasts than Adherence levels.
  - o In diabetes, general acceptance was driven by efficacy, while current adherence was driven by regimen constraints.

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

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