Patients' acceptance and adherence of their medication: results from a European multi-disease study with online patient community

Elodie de Bock[1], Michael Chekroun[2], Donald E. Morisky[3], Benoit Arnould[1]

[1]Patient-Centered Outcomes, Mapi, Lyon, France ; [2]Carenity.com, Paris, France ; [3]UCLA Fielding School of Public Health, Department of Community Health Sciences, Los Angeles, USA

Background

- Management of most chronic conditions requires the patients to take long-term treatments.
- Lack of adherence and persistence are major barriers to treatment efficiency.
- Patients' behaviour and attitude toward their treatment are hypothesised to result from a complex evaluation of the benefits and risks of their treatment by the patients themselves.
- Measuring patients' acceptance of their medication can help better understand and predict patients' behaviour towards treatment.
- The ACCEPT® Questionnaire assesses both the level of treatment acceptance and its determinants.
- The MMAS-8® Questionnaire assesses the level of adherence to treatment.

Objectives

- This study aimed at
  - Evaluating the level of acceptance and adherence for various chronic diseases in real life using a patient online community in 5 languages.

Methods

Study design

- An observational, cross-sectional study conducted through the French, English, German, Spanish and Italian Carenity platforms between October 2015 and February 2016.
- The Carenity platform is a European online patient community created in 2011 in which both patients and their relatives, concerned by a chronic disease, can share their experience, find basic tools for health follow-up and contribute to medical research.
- Patients included were adults suffering from any chronic diseases and currently receiving treatment for this disease.

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[1,2]:
  - 6 determinants of acceptance dimensions, including 5 multi-item dimensions ("Medication Inconvenience", "Long-term Treatment", "Regimen Constraints", "Side Effects", "Effectiveness") and one single-item acceptance dimension ("Numerous Medications").
  - One "General Acceptance" multi-item dimension.
  - The answer choice on all items assessing determinants is based on a three-level assessment: "I don't find this easy to accept"; "I find this easy to accept"; "No" for patients not bothered by the subject addressed in the item. The answer choice on the "general acceptance" items is Likert-like.
  - Scores range from 0 to 100 for multi-item dimensions with higher score indicating greater acceptance. The single item dimension score is kept as the original 3-point response scale common to all items (from 1 – poor acceptance to 3 – great acceptance).
- The Morisky Medication Adherence Scale (MMAS-8®)[3]:
  - 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.
- Pearson correlations between the Acceptance/General dimension and MMAS-8® scores were calculated.
- Diseases with at least 100 patients were analysed individually, while other diseases were all grouped together.

Results

Patient population

- 7,093 patients participated to the study, but 4 were excluded from the analysis sample because of age (n=3) or absence of treatment (n=1).
- Among the 7,089 patients included in the analysis, 4,646 connected to the French Platform, 1,290 to the English, 585 to the Italian, 387 to the Spanish and 181 to the German (Table 1).
- Respondents, aged between 18 and 90 years, were mostly female (68.4%).
- More than 360 chronic diseases were represented, among which 16 including more than 100 patients (Figure 1).

Table 1: Description of the patient population (N=7,089)

|		German (N=181)	English (N=1,290)	French (N=4,646)	Spanish (N=387)	Italian (N=585)	Total (N=7,089)
Age (Years)	Mean (SD)	55.8 (11.6)	51.3 (12.8)	54.0 (12.9)	47.7 (11.2)	52.3 (12.2)	53.0 (12.8)
	Median (Q1 - Q3)	56 (49 - 64)	52 (44 - 61)	55 (45 - 64)	48 (41 - 55)	53 (45 - 60)	54 (45 - 62)
	Min – Max	21 – 82	18 - 88	18 - 90	18 - 86	19 - 81	18 - 90
Gender (%)	Male	51.4	25.8	32.3	19.1	40.3	31.6
	Female	48.6	74.2	67.7	80.9	59.7	68.4

Figure 1: Patient disposition
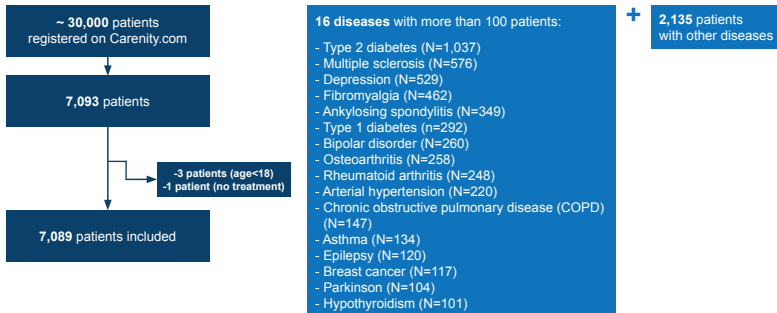
Level of acceptance

- Across diseases: great variations in mean Acceptance/General score were observed, from 34.2 (fibromyalgia) to 65.8 (type 1 diabetes).
- Within disease: for each disease, there were patients reporting the highest possible (100) and the lowest possible (0) Acceptance/General score (Figure 2). A high proportion (27.7%) of respondents suffering from fibromyalgia reported the lowest acceptance score (0). On the other side, a high proportion of patients suffering from type 1 diabetes and COPD reported the highest level of treatment acceptance (28.1% and 25.2%, respectively).
- Modest differences (20-30 points) were observed for most dimensions between the disease with the lowest mean score and the disease with the highest mean score. This difference was larger for the Acceptance/Side effects with more than 40-point differences between the disease with the lowest mean score (breast cancer, 37.0) and the disease with the highest mean score (type 1 diabetes, 77.8) (Table 2).

Figure 2: Acceptance/General score for each disease
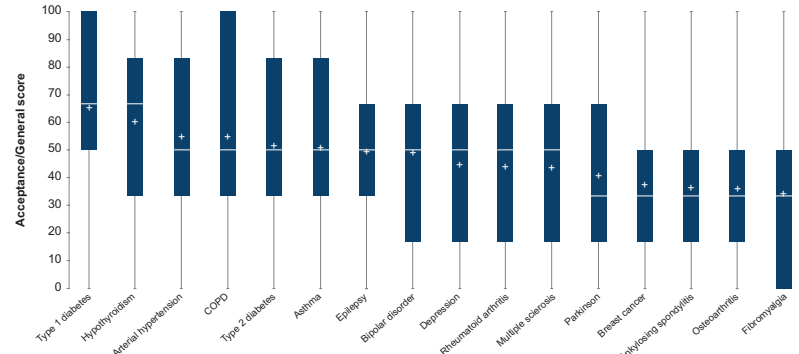
Box = interquartile (Q3-Q1); + = mean; — = median; upper and lower bars = observed max – min values. Boxplots are ranked based on mean Acceptance/General score.

Table 2: Description of ACCEPT® dimensions mean scores: unmet needs and achievements

Determinants	Three diseases with worst level of acceptance in the dimension Mean (SD)		Three diseases with best level of acceptance in the dimension Mean (SD)	
Acceptance/ Medication Inconvenience Dimension	Type 1 diabetes	60.2 (29.1)	Hypothyroidism	93.5 (13.4)
	Ankylosing spondylitis	72.6 (25.1)	Arterial hypertension	92.4 (13.1)
	Rheumatoid arthritis	77.4 (24.4)	Breast cancer	91.4 (15.4)
Acceptance/ Long-term Treatment Dimension	Bipolar disorder	47.1 (24.2)	Multiple sclerosis	60.8 (22.8)
	Parkinson	48.4 (24.3)	COPD	59.0 (20.2)
	Type 1 diabetes	50.5 (23.2)	Type 2 diabetes	58.1 (21.4)
Acceptance/ Regimen Constraints Dimension	Type 1 diabetes	56.8 (31.6)	Arterial hypertension	76.8 (26.0)
	Parkinson	58.4 (33.8)	Osteoarthritis	76.0 (27.9)
	Bipolar disorder	60.3 (33.3)	Breast cancer	75.7 (24.8)
Acceptance/ Numerous Medication Item*	Fibromyalgia	1.79 (0.84)	Multiple sclerosis	2.35 (0.79)
	Parkinson	1.87 (0.92)	Arterial hypertension	2.33 (0.77)
	Ankylosing spondylitis	1.93 (0.91)	Hypothyroidism	2.33 (0.81)
Acceptance/ Side Effects Dimension	Breast cancer	39.1 (30.2)	Arterial hypertension	80.4 (27.1)
	Ankylosing spondylitis	46.1 (33.8)	COPD	78.6 (30.9)
	Rheumatoid arthritis	47.5 (34.6)	Hypothyroidism	77.1 (30.4)
Acceptance/ Effectiveness Dimension	Breast cancer	37.0 (35.4)	Type 1 diabetes	77.8 (30.3)
	Fibromyalgia	44.9 (35.0)	Arterial hypertension	70.4 (32.1)
	Depression	49.9 (35.4)	Asthma	67.4 (34.2)

*Single-item score, ranges from 1-3
SD: Standard deviation

Level of adherence

- For each disease, there were patients reporting the highest adherence score of 8 on the MMAS-8. The lowest adherence level was not reported for all of these diseases (Figure 3).
- None of the diseases was observed to have a high mean adherence score (mean Adherence score <6.6 for all diseases, indicating low to moderate adherence).

Figure 3: Adherence score for each disease
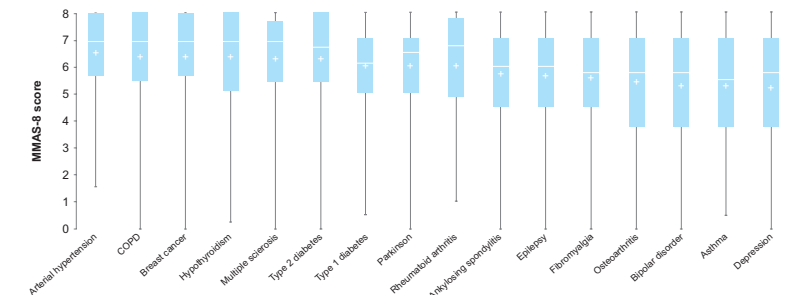
Box = interquartile (Q3-Q1); + = mean; — = median; upper and lower bars = observed max – min values. Boxplots are ranked based on mean MMAS-8® adherence score.

Link between general acceptance and adherence

- According to Pearson correlation coefficient, general acceptance and adherence are significantly correlated (0.27 in the global population, p<0.0001).
- From one language to another, this link can be different (from 0.17 for German-speaking population to 0.30 for Italian-speaking population).
- While most of the diseases showing the highest levels of general acceptance also show the highest levels of adherence (arterial hypertension, COPD, hypothyroidism, diabetes), some interesting contrasts are found (e.g. asthma, with high level of treatment acceptance and low level of adherence, or breast cancer, with low level of acceptance and high level of adherence).
- This link was also studied for each disease and showed some important differences. The only two diseases for which the null hypothesis is not rejected are hypothyroidism and COPD (correlation=-0.016, p=0.87; correlation= 0.14, p=0.09, respectively). For the other diseases, the Pearson correlation coefficient goes from 0.17 (ankylosing spondylitis) to 0.39 (epilepsy).

Conclusion

- Acceptance and adherence are two different but related constructs. While adherence assesses behaviour toward treatment, acceptance explains and partially predicts behaviour. This relationship is complex and varies across diseases.
- The results from our study show the magnitude of unmet needs across a large variety of chronic diseases, and for each disease, the treatment attributes that are a concern for patients and where therapeutic innovation is needed.

References

[1] Marant C et al. Patient. 2012;5:239-249.
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For more information, please contact: Elodie de Bock, edebock@mapigroup.com, www.mapigroup.com