“Exploring Factors explaining Treatment Acceptance in Patients Suffering from a Chronic Disease”

Sandra Wiederkehr, Elodie de Bock, Michael Chekroun, Benoit Arnould
APTEO Study
“Patient acceptance of their treatment: online survey”
Objectives of APTEO Study

- **To evaluate, for a variety of chronic diseases, the level of patients’ acceptance of their medication in real life using a patient online community (Carenity platform)**
  - Which level of acceptance and adherence to treatment patients achieved?
  - What are the specific issues experienced by patients with their treatment acceptance?
  - How do adherence and acceptance correlate?
  - Which factors influence acceptance?
APTEO Study: a Very Simple and Economic Design

- Observational, cross-sectional study

- Conducted in the top 5 EU countries using Carenity platform
  - France, UK, Germany, Italy and Spain

- Patient inclusion criteria
  - Age ≥ 18 years old
  - Member of Carenity platform
  - Suffering from a chronic disease
  - Currently receiving a treatment for their chronic disease
  - Living in one of the involved country
  - Agreeing to participate in the study i.e. completing the online questionnaire
APTEO Data Collection – Focus on Key Questions

- Anonymous self reported data collection by patients
  - Demographic characteristics
    - age, gender, occupational status, geographic location
  - Clinical characteristics
    - chronic disease, date of diagnosis, current treatment, comorbidities
- Patient Reported Outcomes (PRO) questionnaires
  - ACCEPT questionnaire (25 items)
  - Morisky Medication Adherence Scale – 8 items (MMAS-8)
### Treatment-attribute specific dimensions

<table>
<thead>
<tr>
<th>Treatment-attribute specific dimension</th>
<th>Number of items</th>
<th>E.g. item label</th>
<th>E.g. response choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance/ Medication Inconvenience</td>
<td>5</td>
<td>Q1: Do you find it inconvenient to prepare your medication?</td>
<td>&quot;Yes, and I don’t find this easy to accept&quot;</td>
</tr>
<tr>
<td>Acceptance/ Long-term Treatment</td>
<td>3</td>
<td>Q5: Will you have to take your medication for a long time?</td>
<td>&quot;Yes, but I find this easy to accept&quot;</td>
</tr>
<tr>
<td>Acceptance/ Regimen Constraints</td>
<td>5</td>
<td>Q6: Do you find that having to remember to take your medication is inconvenient?</td>
<td>&quot;No&quot;</td>
</tr>
<tr>
<td>Acceptance/ Side Effects</td>
<td>5</td>
<td>Q16: Are these side effects unpleasant?</td>
<td></td>
</tr>
<tr>
<td>Acceptance/ Effectiveness</td>
<td>3</td>
<td>Q20: Do you find that your medication is effective for you?</td>
<td></td>
</tr>
</tbody>
</table>
# APTEO Data Collection – ACCEPT questionnaire: ... + 1 general acceptance dimension

<table>
<thead>
<tr>
<th>General Acceptance dimension</th>
<th>Number of items</th>
<th>Item labels</th>
<th>Response choice (Likert-type scales)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance/General</td>
<td>3</td>
<td>Q23: Do you agree with the following statement: &quot;My medication has more advantages than disadvantages&quot;?</td>
<td>&quot;Totally disagree&quot; &quot;Somewhat disagree&quot; &quot;Somewhat agree&quot; &quot;Totally agree&quot; &quot;I don’t know&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q24: Given the advantages and disadvantages of your medication, do you consider it to be an acceptable solution?</td>
<td>&quot;Not at all acceptable&quot; &quot;Not very acceptable&quot; &quot;Somewhat acceptable&quot; &quot;Totally acceptable&quot; &quot;I don’t know&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Q25: Are you convinced that in the long term, it is worth taking your medication?</td>
<td>&quot;Not at all convinced&quot; &quot;Not really convinced&quot; &quot;Somewhat convinced&quot; &quot;Totally convinced&quot; &quot;I don’t know&quot;</td>
</tr>
</tbody>
</table>
APTEO Data Collection – Morisky Medication Adherence Scale (MMAS)

- Reference tool to assess adherence: MMAS – 8 items
  - Generic self-administered questionnaire to measure adherence
  - Widespread utilization
  - 8 YES/NO questions on situations leading to not taking treatment
  - Scores from 0 to 8 ➔ easy interpretation

<table>
<thead>
<tr>
<th>MMAS-8 Score</th>
<th>Adherence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6</td>
<td>Low Adherence</td>
</tr>
<tr>
<td>6 to &lt;8</td>
<td>Medium Adherence</td>
</tr>
<tr>
<td>= 8</td>
<td>High Adherence</td>
</tr>
</tbody>
</table>

APTEO 2 Study Results
## Patient population

<table>
<thead>
<tr>
<th>Variables</th>
<th>Population (N=3,011)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>years: mean (SD)</td>
<td>53.7 (12.8)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female: n(%)</td>
<td>2,027 (67.3%)</td>
</tr>
<tr>
<td><strong>Professional status</strong></td>
<td></td>
</tr>
<tr>
<td>Employed: n(%)</td>
<td>1,309 (43.5%)</td>
</tr>
<tr>
<td>Non employed: n(%)</td>
<td>747 (24.8%)</td>
</tr>
<tr>
<td>Retired: n(%)</td>
<td>951 (31.6%)</td>
</tr>
<tr>
<td><strong>Time since diagnosis</strong></td>
<td></td>
</tr>
<tr>
<td>[0-2[ years: n(%)</td>
<td>370 (12.3%)</td>
</tr>
<tr>
<td>[2-5[ years: n(%)</td>
<td>592 (19.7%)</td>
</tr>
<tr>
<td>[5-10[ years: n(%)</td>
<td>701 (23.3%)</td>
</tr>
<tr>
<td>≥ 10 years: n(%)</td>
<td>1,348 (44.8%)</td>
</tr>
</tbody>
</table>
Patient population – chronic disease distribution

<table>
<thead>
<tr>
<th>Disease</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes (Type 2)</td>
<td>946</td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>542</td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td>417</td>
</tr>
<tr>
<td>Diabetes (Type 1)</td>
<td>267</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>218</td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>215</td>
</tr>
<tr>
<td>COPD</td>
<td>117</td>
</tr>
<tr>
<td>Asthma</td>
<td>124</td>
</tr>
<tr>
<td>Crohn’s disease</td>
<td>88</td>
</tr>
<tr>
<td>Psoriasis</td>
<td>77</td>
</tr>
</tbody>
</table>
Mean MMAS adherence score is around 6
- These patients adhere lowly to moderately to their treatment
ACCEPT General Score

- General Acceptance is low
  - Around 50 in mean
ACCEPT treatment-attributes
ACCEPT treatment-attributes

- Medication Inconvenience
- Long Term
- Regimen Constraints
- Side Effects
- Effectiveness
What do patients not easily Accept in terms of Long-term treatment?

- Routine: 10.7%
- Long Time in the Future: 39.9%
- Long Time in the Past: 24.3%
What do patients not easily Accept in terms of **Side effects**?

- **Risk of Serious Side Effects**: 20.6%
- **Medication Due to Side Effects**: 13.1%
- **Disabling Side Effects**: 23.5%
- **Unpleasant Side Effects**: 33.7%
- **Side Effects**: 34.5%
What do patients not easily Accept in terms of Effectiveness?

- **RAPID EFFECT**: 26.1%
- **PROTECTING ENOUGH**: 11.7%
- **EFFECTIVE**: 12%

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What do patients not easily Accept in terms of **Numerous medications**?
What is the Link Between Acceptance and Adherence?
## Main Correlations

<table>
<thead>
<tr>
<th></th>
<th>Acceptance/Medication Inconvenience</th>
<th>Acceptance/Long Term</th>
<th>Acceptance/Regimen Constraints</th>
<th>Acceptance/Side Effects</th>
<th>Acceptance/Effectiveness</th>
<th>Acceptance/General Score</th>
<th>Adherence Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acceptance/General Score</strong></td>
<td>R = 0.07 p&lt;0.0001</td>
<td>R = 0.24 p&lt;0.0001</td>
<td>R = 0.23 p&lt;0.0001</td>
<td>R = 0.32 p&lt;0.0001</td>
<td>R = 0.61 p&lt;0.0001</td>
<td>1</td>
<td>R = 0.28 p&lt;0.0001</td>
</tr>
<tr>
<td><strong>Adherence Score</strong></td>
<td>R = 0.15 p&lt;0.0001</td>
<td>R = 0.32 p&lt;0.0001</td>
<td>R = 0.38 p&lt;0.0001</td>
<td>R = 0.20 p&lt;0.0001</td>
<td>R = 0.19 p&lt;0.0001</td>
<td>R = 0.28 p&lt;0.0001</td>
<td>1</td>
</tr>
</tbody>
</table>
At the End of the Day, What are the Factors Explaining Acceptance?
Final multivariate model – Factors explaining Acceptance

- Acceptance/Effectiveness (p < 0.001)
- Acceptance/ Side Effects (p < 0.001)
- Acceptance/ Long Term Treatment (p < 0.001)
- Having numerous medications (p = 0.003)
- Time since diagnosis (p < 0.001)
- Being younger than 40 compared to being aged 60+ (p = 0.04)
- Speaking French or English compared to others (p < 0.001)
Final multivariate model – Factors explaining Acceptance

- Acceptance/Effectiveness ($p < 0.001$)
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- Time since diagnosis ($p < 0.001$)
- Being younger than 40 compared to being aged 60+ ($p = 0.04$)
- Speaking French or English compared to others ($p < 0.001$)
- Being employed or unemployed compared to being retired ($p = 0.01$ and $p < 0.001$ respectively)
Final multivariate model – Factors explaining Acceptance

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- Being employed or unemployed compared to being retired ($p = 0.01$ and $p < 0.001$ respectively)

- 43% of the variance of the Acceptance/General score explained
Conclusions
Summary of Key findings

- **Link between acceptance and adherence:**
  - Significant but small correlation
  - General Acceptance is primarily driven by Acceptance of limitations in Efficiency
    - Secondarily by Acceptance of Side Effects, Acceptance of Constraints and Acceptance of Long-term
  - MMAS Adherence more correlated to Acceptance of Constraints and Long-term than to Acceptance of Side-effects and Acceptance of limitations in Efficiency

- **Factors explaining Treatment Acceptance in Patients Suffering from a Chronic Disease:**
  - Long-term treatment
  - Side effects
  - Effectiveness
  - Number of medications
  - Clinical/socio-demographic factors
Discussion

- Several chronic diseases grouped in the population
  - Analysis to be performed by disease as well

- Socio-demographic factors
  - Age:
    - Is it explained by the population distribution by disease? Some diseases impact more often old patients...
    - Is it explained because the patient behavior regarding acceptance of treatment attributes depends on the age?

To be determined
Thank You!

Any questions? Email our presenter!

edebock@mapigroup.com