

Medication adherence in type 2 diabetes mellitus (T2DM): patients perspective in the Spanish Health Care System

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Background

The problem



- **382 million people worldwide** (prevalence 8.3%)¹
- **Expected to reach 592 million in 2035**²

- **Up to 5 million people suffer from diabetes** (13.8% of population, high infradiagnosis)³



- Diabetes treatment is complex and hard to follow (other chronic diseases + long-term treatment) resulting on **non-adherence**⁴ which reaches 50% for chronic diseases⁵.
- Only a 22.2% of diabetes population would be adherent ($\geq 80\%$)⁶, which implies **poor glycemic control, increased morbidity, mortality and healthcare expenditures**⁷⁻¹⁰.

Background

Potential solutions

- Multiple **factors** could influence treatment adherence^{11,12}, while different **strategies** could improve it: simplifying treatment regimens or **improving patient's motivation and education**¹³.
- A **greater T2DM patients' involvement** in their disease management → might **improve adherence** to therapy¹⁴.
- A **different model of health care** should be considered in which the patient must play an active role along with healthcare professionals: **patient centeredness**.



patient centeredness

Aim

- To elicit type 2 diabetes mellitus (T2DM) patients' perception regarding the **factors** influencing medication adherence together with the **strategies** aimed to improve it.

Methods

Study participants and measures



- A literature review about Factors and Strategies was conducted in order to develop the questionnaire.
- Questions were reviewed by experts.

Methods

Study participants and measures



1. Factors associated with adherence and persistence to the T2DM treatment (5 questions)

Sample 1

How important do you think the following aspects are in treatment adherence and persistence?

	Not at all important	Not very important	Neither important nor unimportant	Important	Very important
Knowledge about the disease	1	2	3	4	5
Knowledge about the treatment	1	2	3	4	5
Confidence in the choice or efficacy of the treatment	1	2	3	4	5
Shared decision (patient-physician) on the choice of treatment	1	2	3	4	5
Knowledge about the consequences of non-adherence	1	2	3	4	5
Motivation	1	2	3	4	5

5-likert scale

Not important

Important

Methods

Study participants and measures



2. Strategies to improve T2DM treatment adherence and persistence (6 questions)

Sample 2

Please state the main characteristic of the treatment regimen that you believe should be modified in order to improve adherence and persistence (please tick one option)

- ☒ Diminishing the frequency of administration
- ☐ Decreasing the number of tablets
- ☐ Modifying the route of administration
- ☐ Adapting the taking of medication to the patient's daily activities (meals, etc.)

Methods

Study participants and measures



3. Patient's adherence
(Morisky Medication Adherence Scale (MMAS-4)¹⁵) along with **sociodemographic** and **clinical variables**.

Methods

Study participants and measures



- Eligible participants **were adult T2DM patients with at least one comorbidity** (obesity, dyslipidemia and hypertension) and **sufficient cognitive capacity**.
- Contacted for participation by medical coordinators and the **Spanish Diabetes Federation, FEDE**.

Methods

Study participants and measures



Results

Sociodemographic characteristics

Sociodemographic characteristics



51.1%
Female

- 963 T2DM patients
- 60.4 (15.5)* years old
- 73.6% urban
- 28.6% primary school
- 43.3% retired

Clinical characteristics



11.3 (8.9)*
years from
diagnosis



10.5 (8.2)*
Duration TM2
treatment



65.4%
Adherent



56.2%
Oral



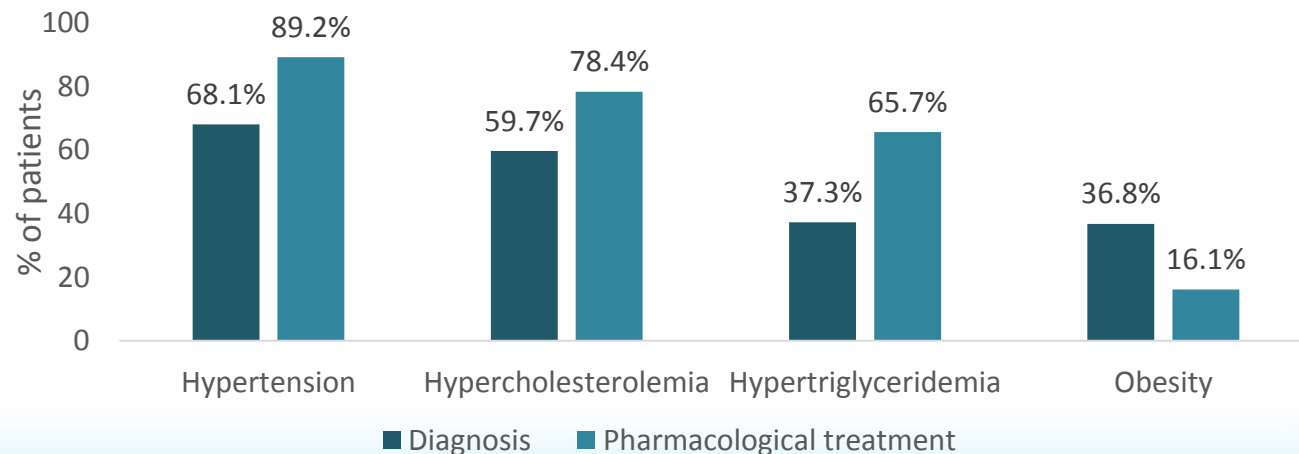
13.8%
Injectable



30%
Combined

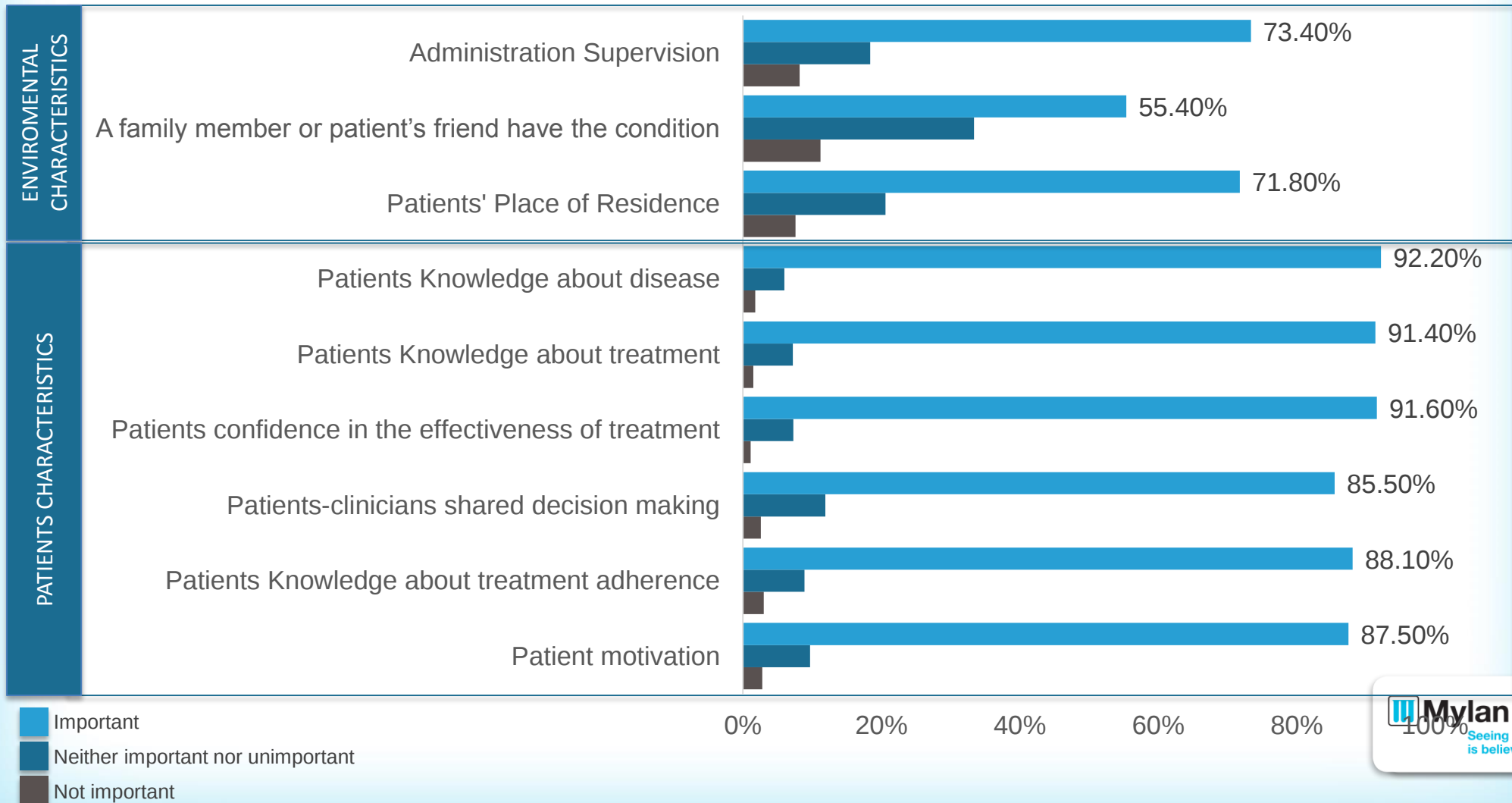
Comorbidities

1	39.7%
2	29.7%
> 3	29.7%



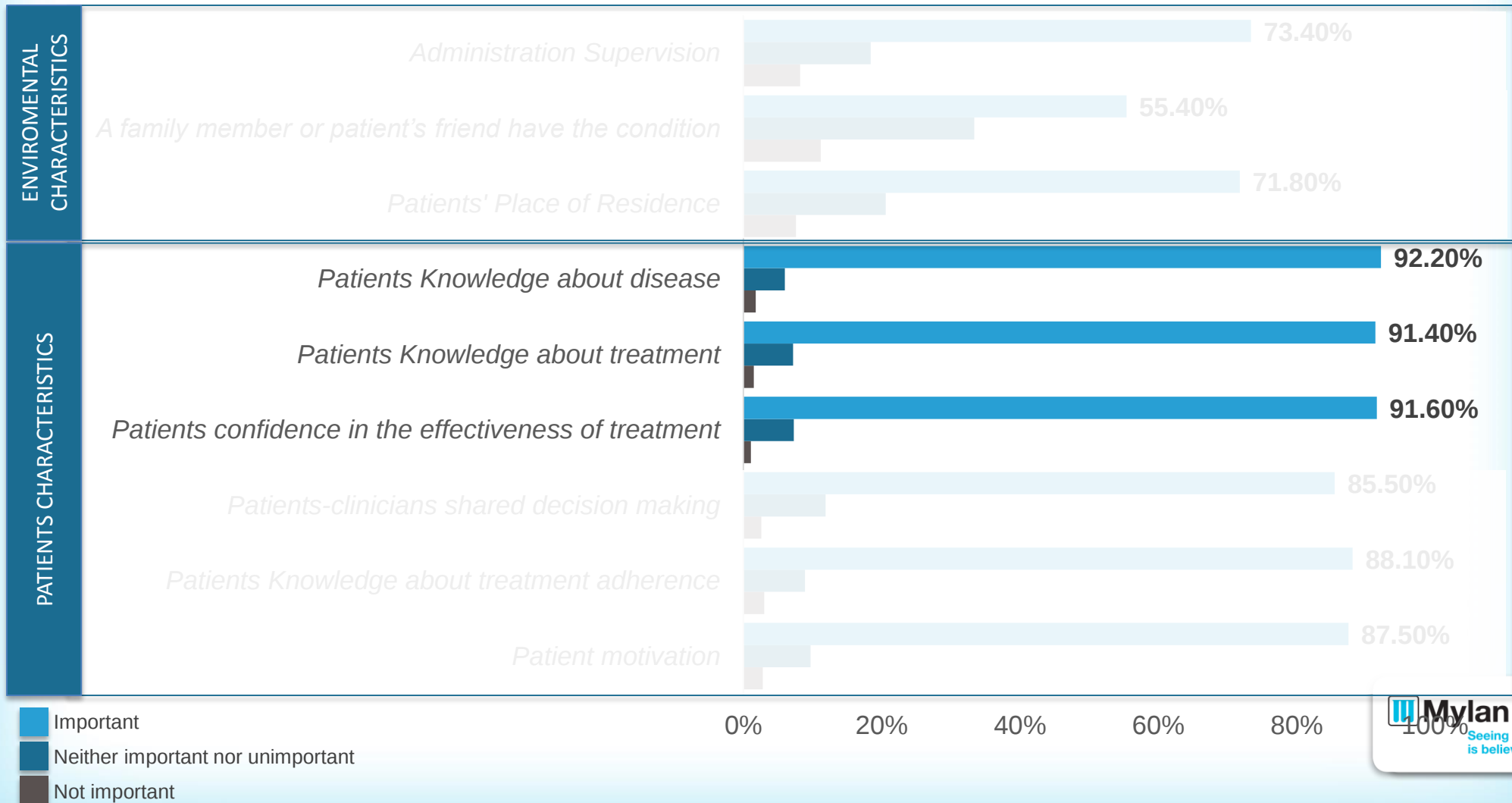
Results

Factors: Patients and environmental characteristics



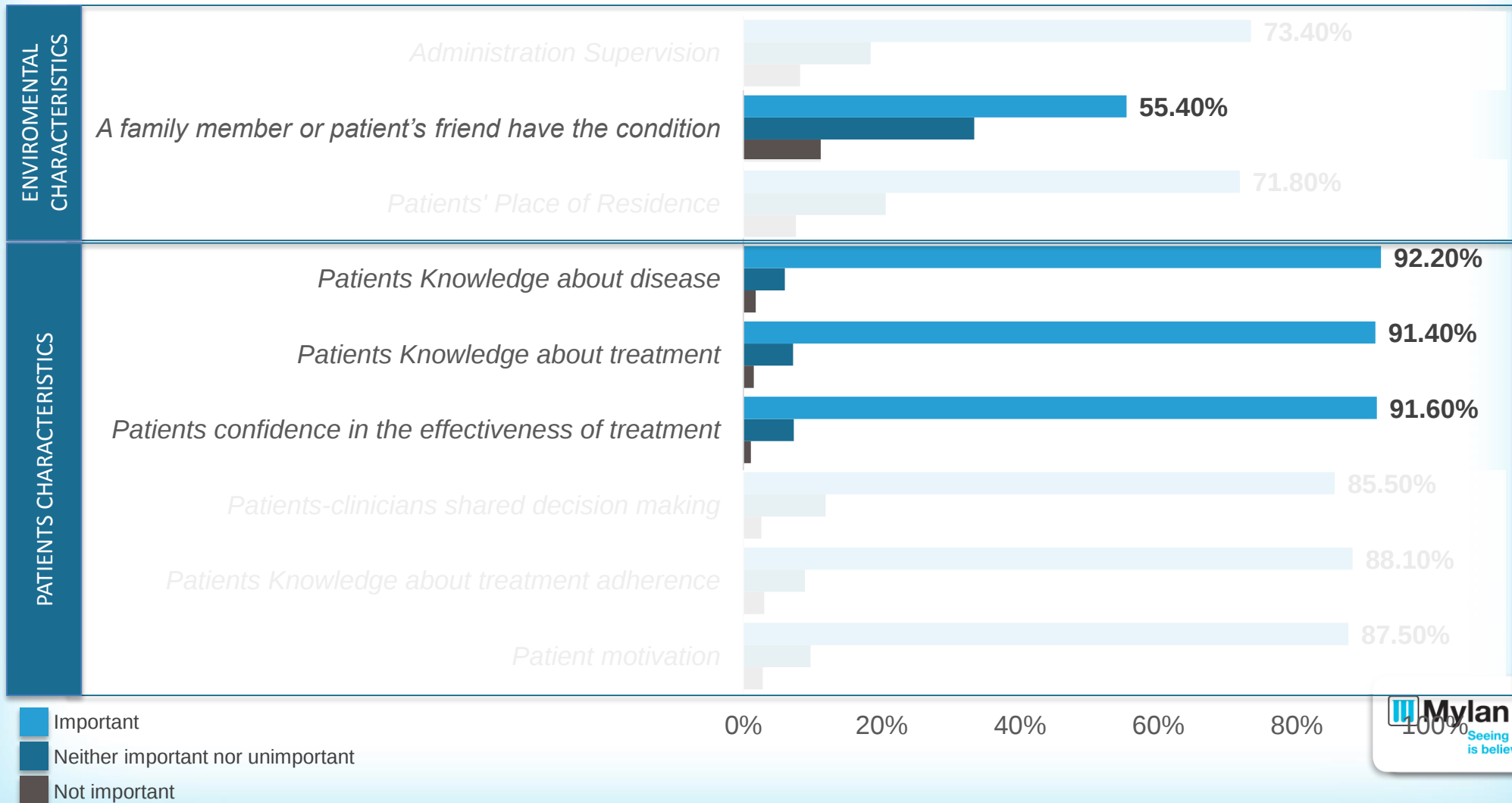
Results

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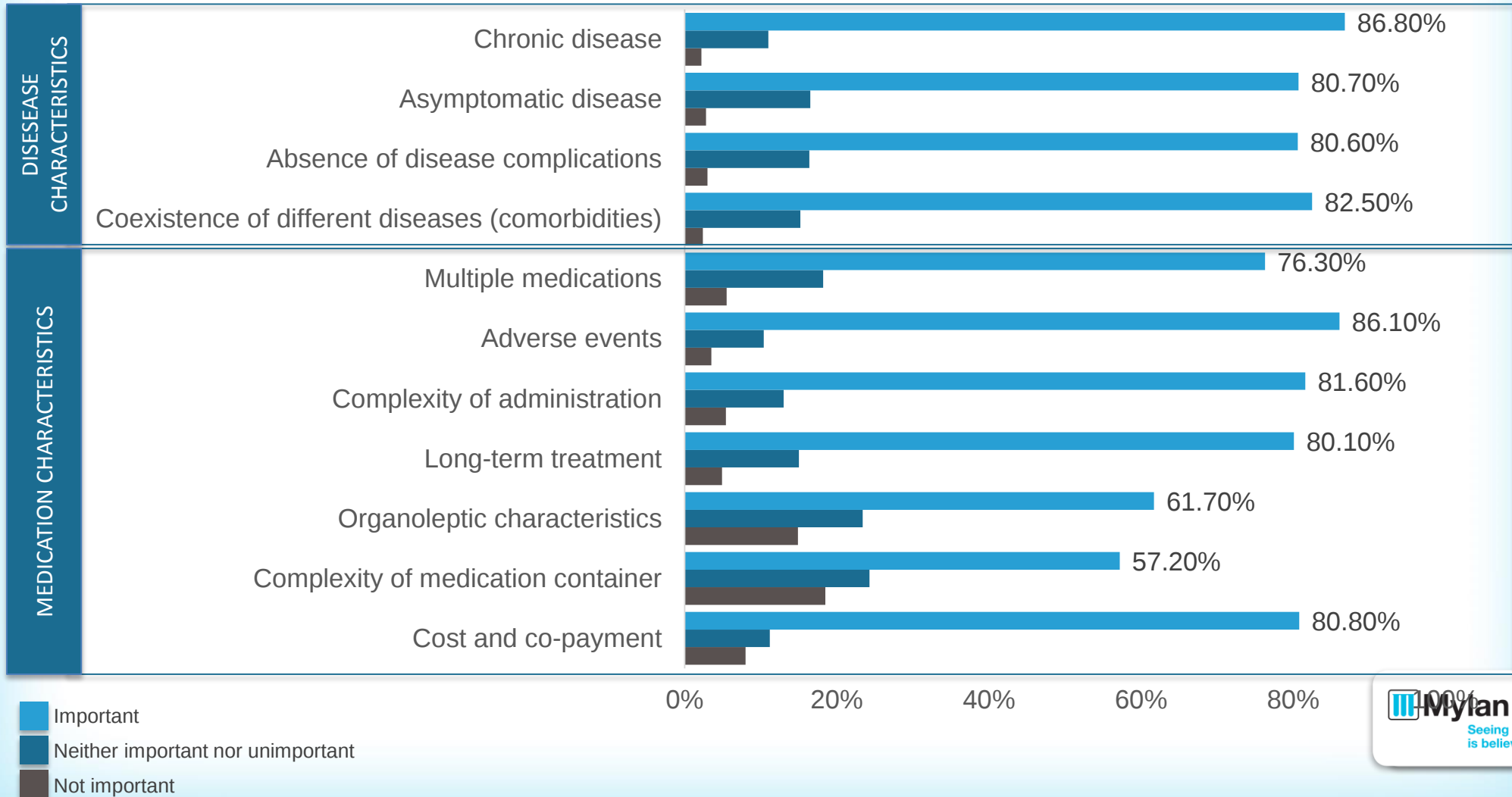
Results

Factors: Patients and environmental characteristics



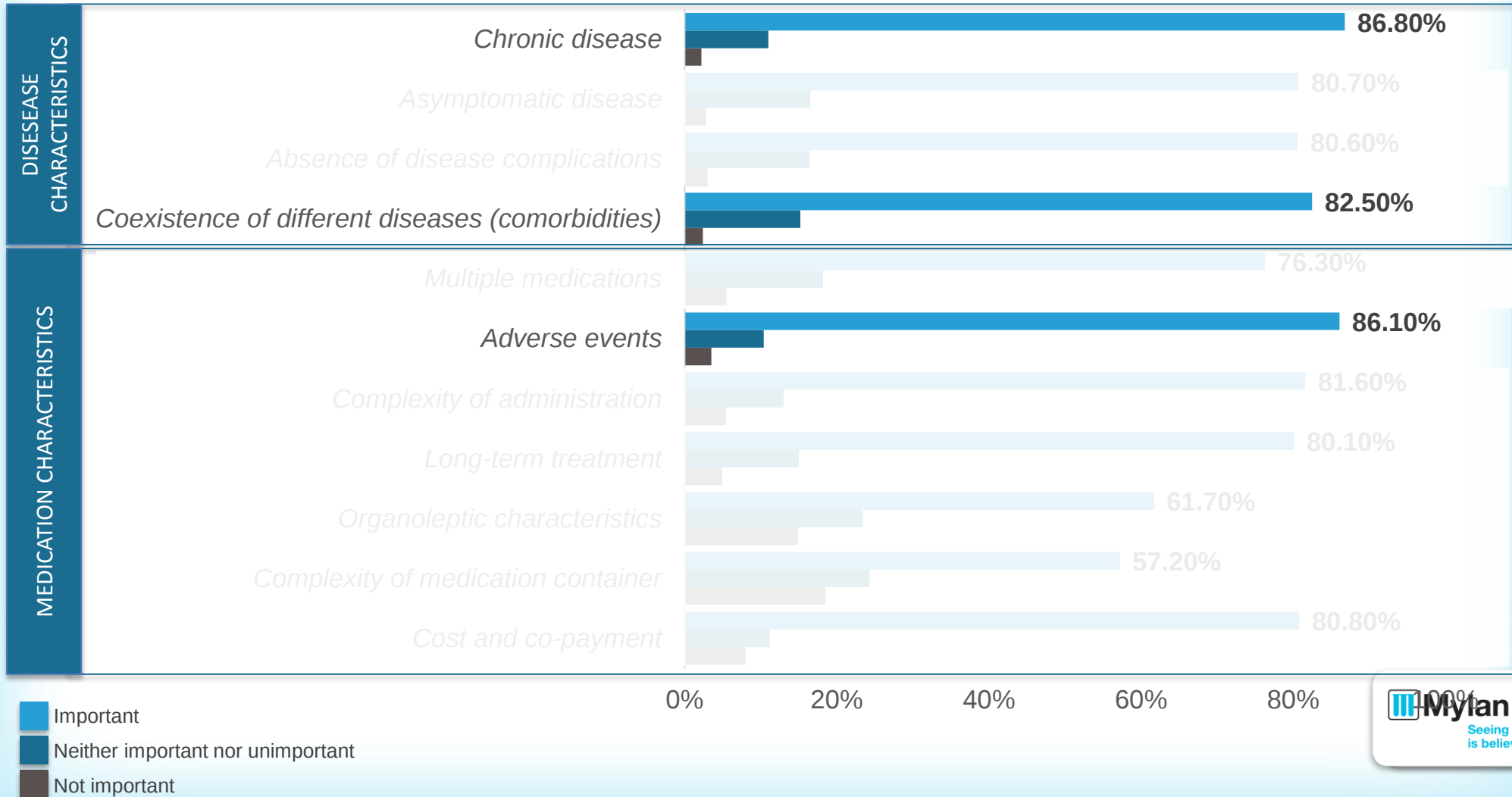
Results

Factors: Medication and disease characteristics



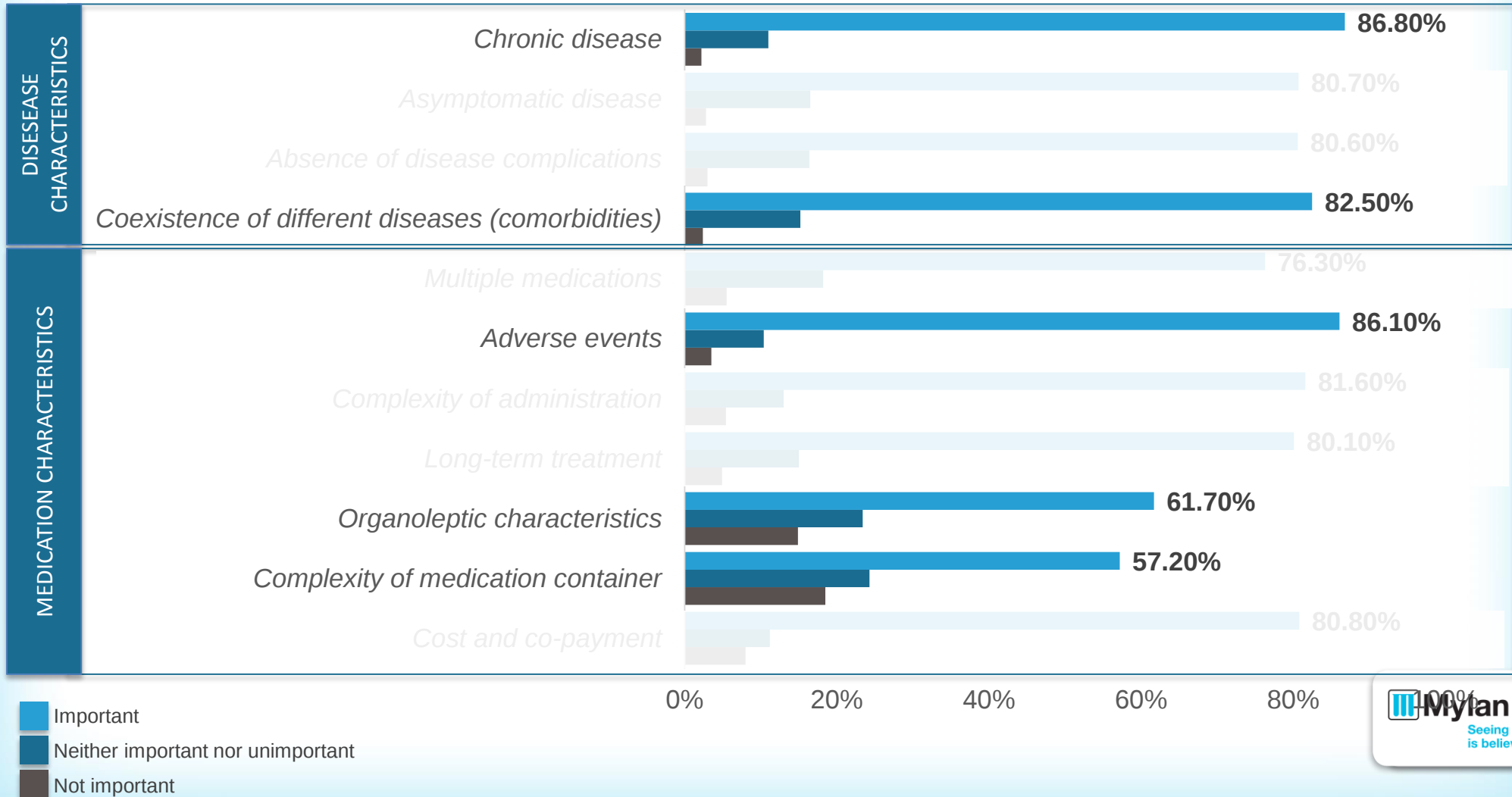
Results

Factors: Medication and disease characteristics



Results

Factors: Medication and disease characteristics

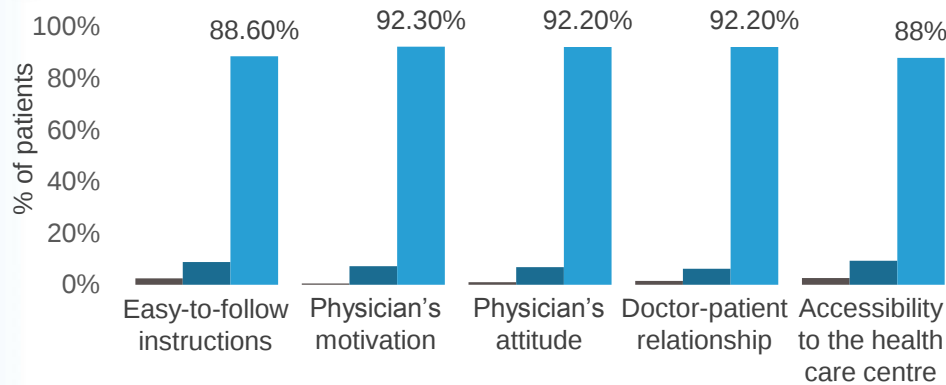


Results

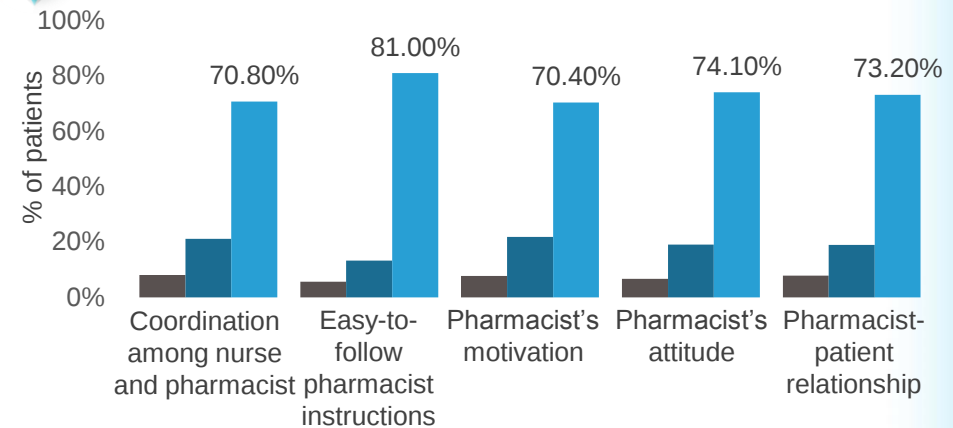
Factors: Health care professionals' characteristics



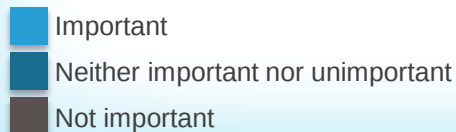
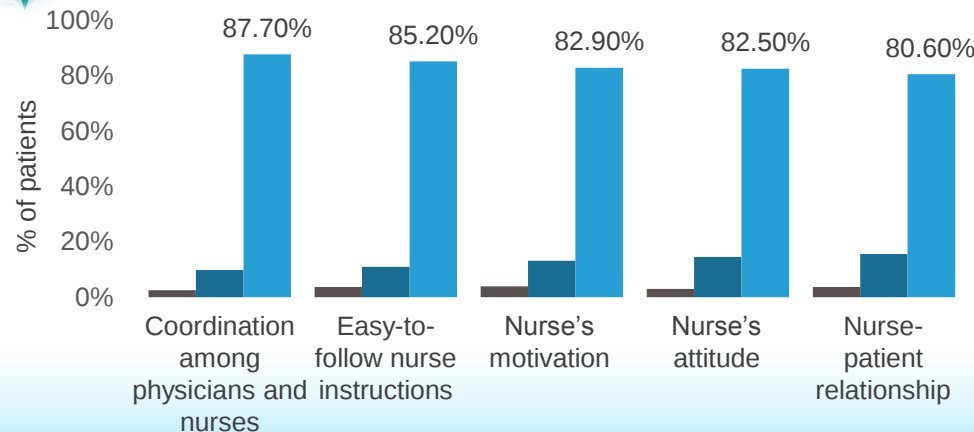
Doctors



Pharmacists



Nurses

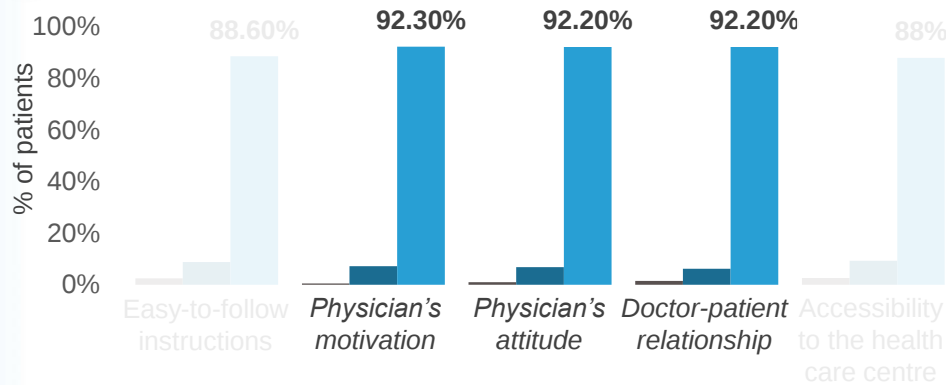


Results

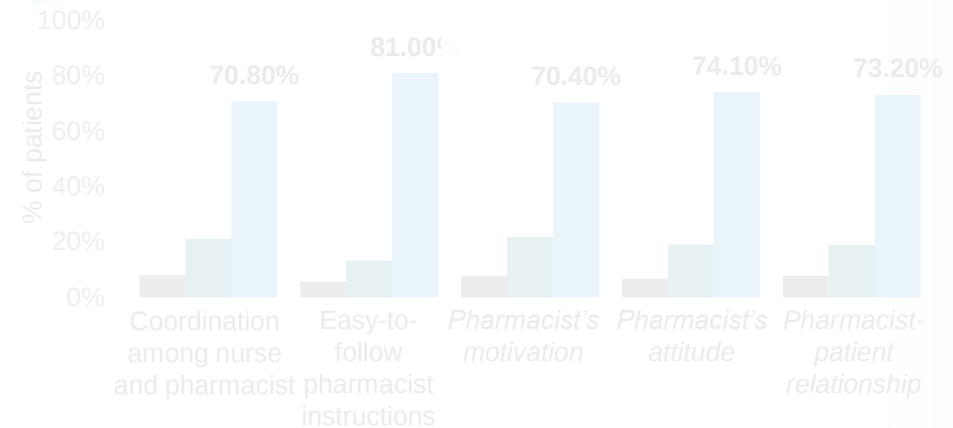
Factors: Health care professionals' characteristics



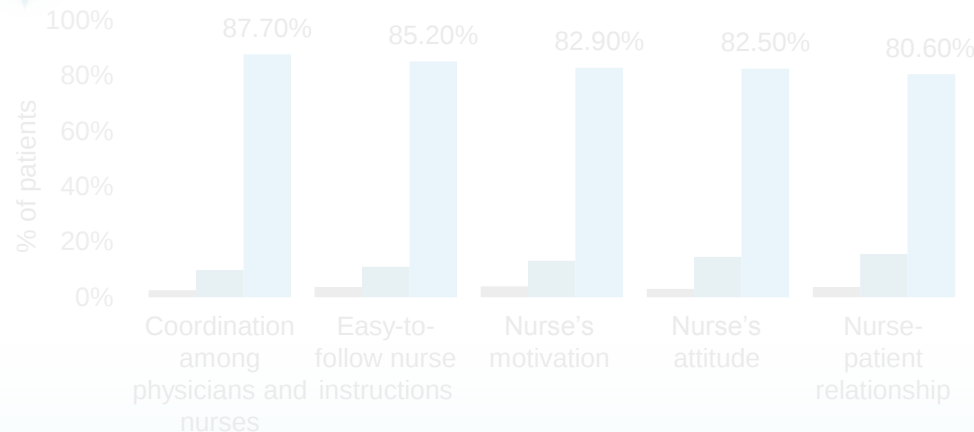
Doctors



Pharmacists



Nurses



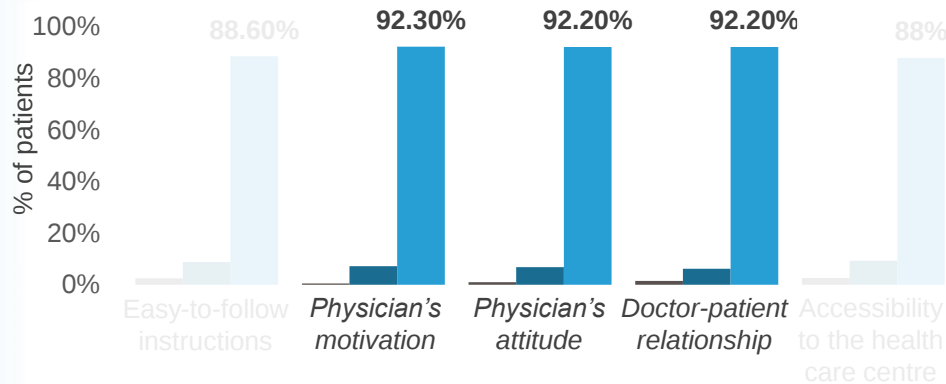
- Important
- Neither important nor unimportant
- Not important

Results

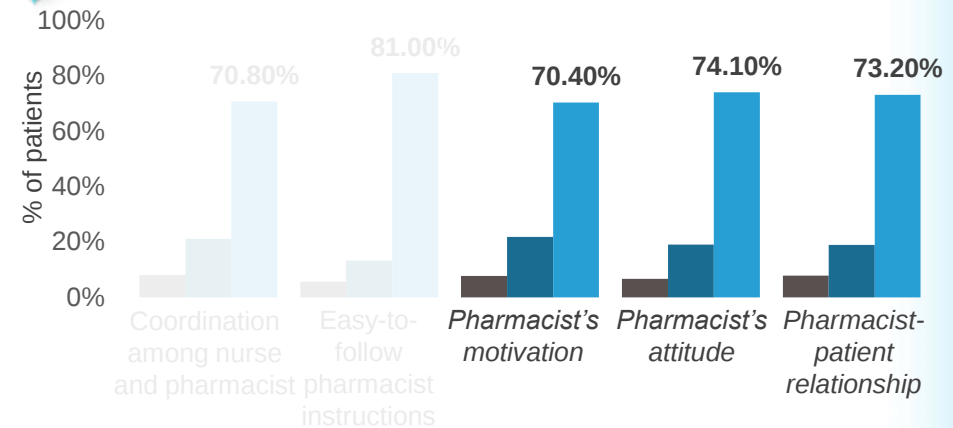
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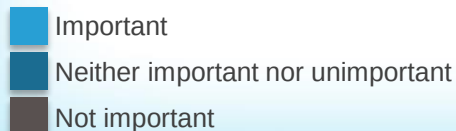
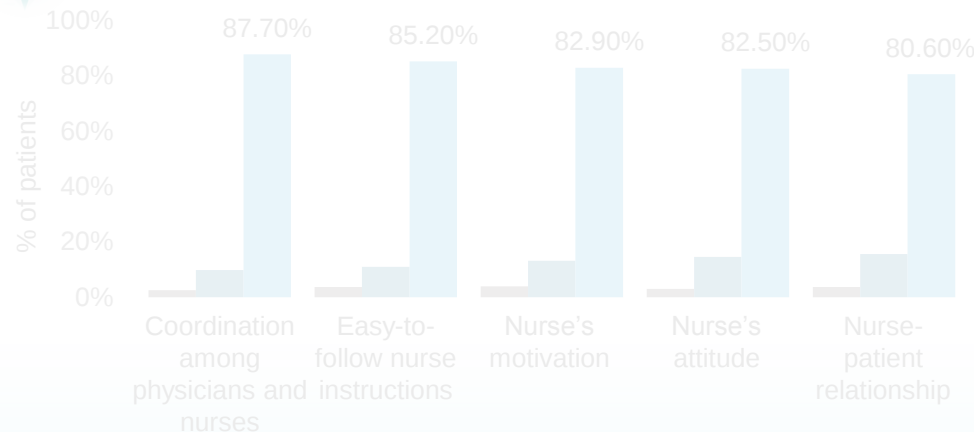
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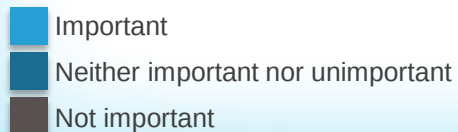
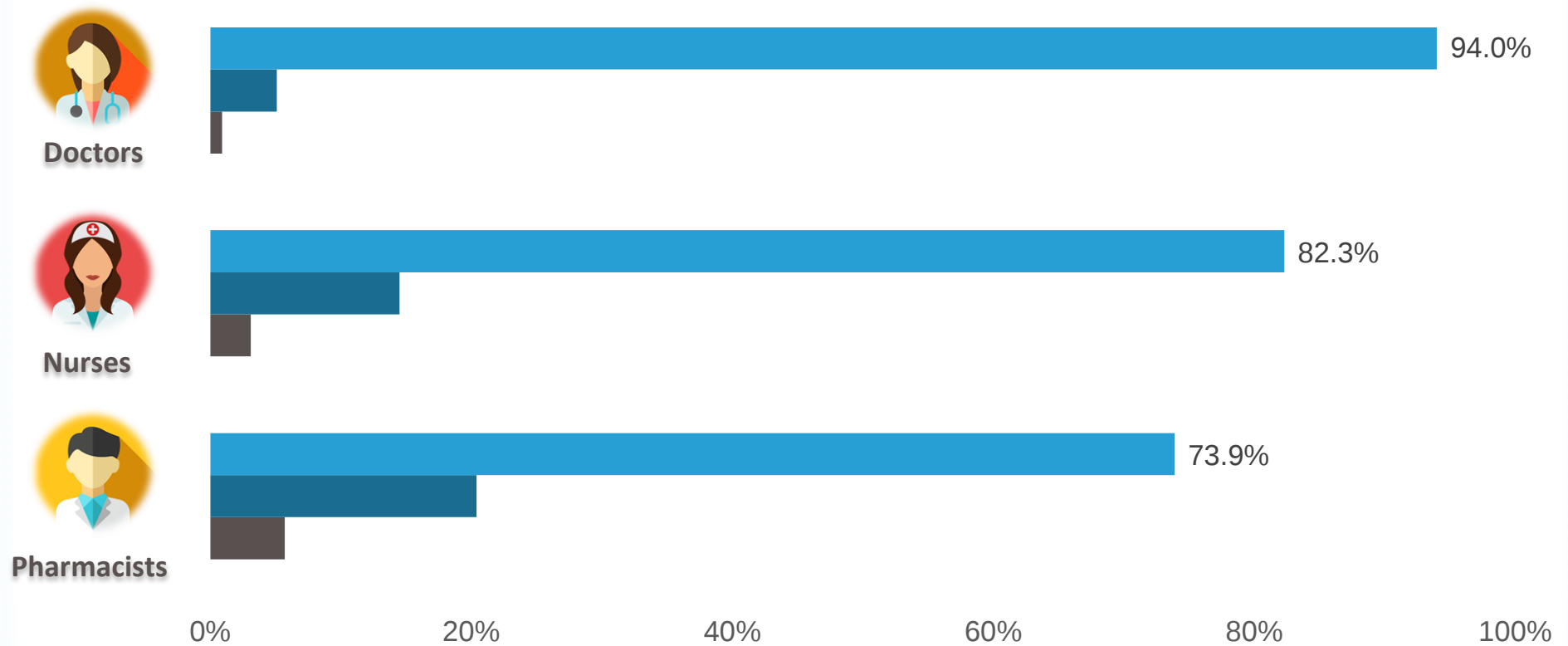


Nurses



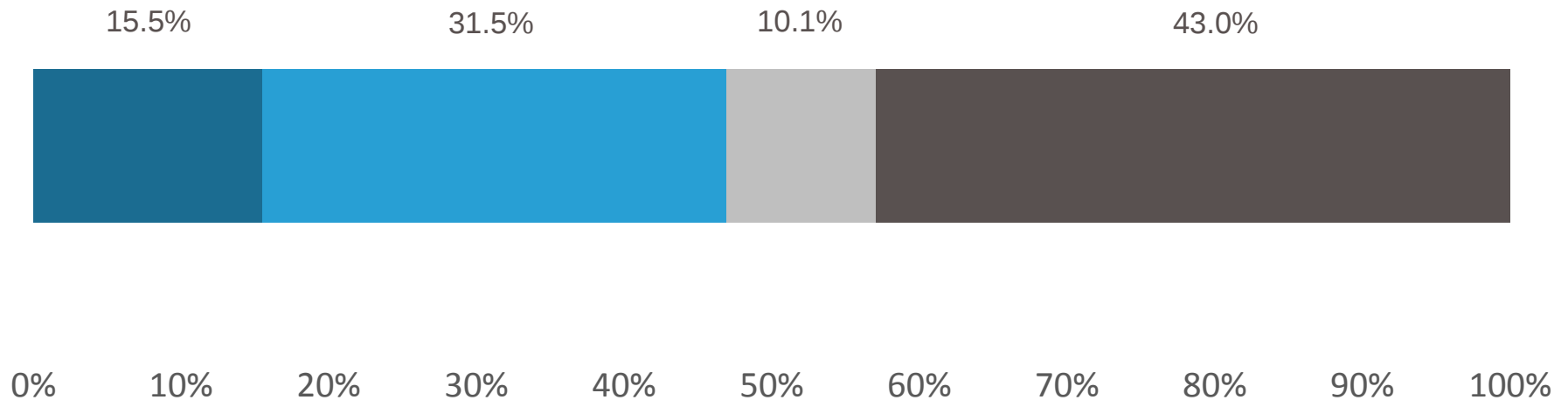
Results

Strategies: Information provided by healthcare professionals



Results

Strategies: Complexity of the therapeutic regimen



-  To reduce the frequency of administration
-  To reduce the number of tablets
-  To modify route of administration
-  To adjust treatment regimen to activities of daily living

Methods

Strategies: Other techniques

Techniques to improve adherence to treatment	Not important	Neither important nor unimportant	Important
Mobile applications	27.9%	26.8%	45.3%
Medication schedule	10.9%	22.2%	66.9%
Reminders over telephone, mail or email	24.0%	28.9%	47.1%
Pill dispensers (weekly)	10.0%	24.3%	65.7%
Pill dispensers (daily)	9.0%	22.8%	68.1%
Tablet counting	15.2%	28.8%	56.1%

Social support	Not important	Neither important nor unimportant	Important
Involvement of family and friends	7.8%	21.6%	70.6%

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Explanatory variables

Adherent vs. non-adherent patients

- Compared to non-adherent, adherent patient considered more important their **“treatment confidence”** ($p=0.013$), **“knowledge about disease”** ($p=0.003$) and **“treatment”** ($p=0.002$) and **“non-adherence consequences”** ($p=0.03$) as factors that determine their adherence.
- Compared to non-adherent, adherent patient considered more important the **“information about treatment provided by nurses”** ($p=0.03$) and **“information about treatment provided by pharmacists”** ($p=0.01$) an effective strategy to improve their adherence.

Conclusions

- **Healthcare professionals** should **acknowledge patients' opinions and preferences** in the development of medication management strategies, focusing in:
 - 1) Providing patients comprehensive information about disease, treatment and non-adherence consequences.**
 - 2) Adjusting medication dosages and timing to patient's daily lives.**
- The findings of this study may help to incorporate a greater patient centeredness and guide medical decision-making in order to improve T2DM patient's adherence and clinical outcomes.

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