

# TYPE 2.0



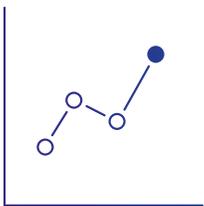
## PUBLICATION SUMMARY

### Adherence to Insulin Treatment in Insulin-Naïve Type 2 Diabetic Patients Initiated on Different Insulin Regimens

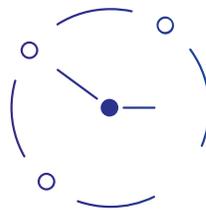
Dilek Gogas Yavuz, Sevim Ozcan, Oguzhan Deyneli. *Patient Preference and Adherence*. 2015;9:1225-1231.

#### Study Overview

This study assessed adherence to insulin treatment in terms of treatment persistence and daily adherence to insulin injections among insulin-naïve type 2 diabetic patients (N=433) initiating insulin therapy with basal (long acting), basal-bolus, and premixed insulin regimens in a tertiary endocrinology outpatient clinic in Istanbul, Turkey. Patients completed a questionnaire-based phone interview survey six months after initiating insulin therapy.



Persistence was defined as the time from therapy initiation to discontinuation of treatment.



Daily adherence to insulin was defined as the extent to which a patient acted in accordance with the prescribed interval and dose of a dosing regimen. Skipping of at least one injection in a week was considered as nonadherence to insulin injections.<sup>1</sup>

## Persistence to Insulin Treatment

1

Overall, almost half (44.3%) of patients were nonadherent to insulin therapy (including non-persistence and daily insulin nonadherence).

**24%** (n=104)

were due to non-persistence (treatment discontinuation)

- Patients non-persistent to insulin treatment were younger ( $p=0.001$ ), had a shorter diabetes duration ( $p=0.0008$ ), and shorter treatment duration ( $p=0.0001$ ) compared with the persistent group.

**20.3%** (n=88)

were due to non-adherence to daily insulin

2

Treatment withdrawal occurred in 87 (20.1%) patients, excluding deaths (n=17); reasons included:

**75.9%** (n=66)

Patients' discretion

**24.1%** (n=21)

Negative beliefs (risk of dependency and weight gain) about insulin therapy

**13.7%** (n=12)

Physician's decision

**8.0%** (n=7)

Insulin-related adverse events (major hypoglycemia, allergic skin reaction, and leg edema)

3

Although the majority (75.9%) of the treatment withdrawals occurred at the patient's discretion, the reasons identified for withdrawal involved negative beliefs about insulin therapy rather than fears related to injection or complexity and/or inflexibility of the dosing schedules.

This seems to support the statement that use of insulin pens may overcome some of the patient-related challenges, including stigma and fear of initiating insulin therapy.<sup>2,3</sup>

## Adherence to Daily Insulin

1

Overall, 20.3% (n=88) of patients skipped daily doses of insulin.

**9.4%**

were nonadherent to daily insulin injections for consecutive days (2-5 days)

2

With respect to insulin regimen, patients who skipped insulin injections for more than a day were on:

**52.0%**

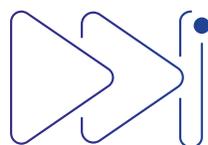
Basal bolus

**29.0%**

Basal insulin

**19.0%**

Premixed insulin



3

The most common reasons for skipping doses included forgetting (40.9%) and considering treatment unnecessary since they were feeling good (22.7%).

**40.9%**

of patients reported forgetting both bolus and basal insulin doses and often felt uncertain about whether, when, and how much insulin they had taken

Major reasons for forgetting were:

- ▶ Disruptions to their daily routine
- ▶ Distraction by social events
- ▶ Minor interruptions
- ▶ "Being busy"

## Differences with Insulin Regimens

- The basal bolus regimen was the most commonly initiated insulin regimen and was associated with significantly higher dropout rates in the short term and an increased likelihood of skipping a dose.
  - *Treatment adherence was better in terms of dose skipping in patients using premixed insulin and basal insulin as compared with basal bolus regimen (p=0.04).*
- The self-reported rate for minor hypoglycemia was significantly higher with the basal bolus regimen (62.3%) than with premixed (54.1%) and basal insulin regimens (50.0%) (p<0.05).
- The number of follow-up visits attended by patients on a premixed insulin regimen (1.5±0.7) was significantly lower than for those on basal bolus (2.0±1.2) and basal (2.1±0.2) insulin regimens (p=0.03).

## Study Limitations

- The relatively small sample size and single-center design limit the generalization of the findings to the overall diabetic population.
- The findings are based on cross-sectional data on self-reported medication adherence, which could have been biased by patients' foreknowledge of their laboratory results.
- Lack of data on adherence to the other aspects of diabetes treatment, such as diet and physical activity, is another possible limitation, which otherwise would extend the knowledge obtained in the current study.
- No data are available on diabetic complications, which may also encourage nonadherence.

## Conclusions

- Almost half of patients in the study were nonadherent to insulin and one-fifth discontinued therapy or skipped a daily insulin dose.
- Younger patients with shorter duration of both diabetes and antidiabetic treatment were more likely to be discontinuers, while the basal bolus regimen was associated with poorer persistence and adherence to daily insulin injections.
- The findings emphasize the role of negative beliefs about insulin treatment (rather than its complexity and inflexibility) in the decision to withdraw from treatment among discontinuers.
- Inquiring about and actively listening to patients' beliefs, concerns, and/or fears regarding insulin therapy seem crucial in achieving better adherence.

## References:

1. Peterson AM, Nau DP, Cramer JA, Benner J, Cwadyri-Sridhar F, Nichol M. A checklist for medication compliance and persistence studies using retrospective databases. *Value Health*. 2007;10(1):3-12.
2. Korytkowski M, Bell D, Jacobsen C, Suwannasari R; FlexPen Study Team. A multicenter, randomized, open-label, comparative, two-period crossover trial of preference, efficacy, and safety profiles of a prefilled, disposable pen and conventional vial/syringe for insulin injection in patients with type 1 or 2 diabetes mellitus. *Clin Ther*. 2003;25(11):2836-2848.
3. Flood T. Advances in insulin delivery systems and devices: beyond the vial and syringe. *Insulin*. 2006;1(3):99-108.