

Patient and Physician Perspectives on the Use of Connected Digital Ecosystems for Type 2 Diabetes Management: International Cross-Sectional Observational Study

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INTRODUCTION

Digital health tools such as phone apps, consumer wearable devices, and point-of-service monitoring devices are becoming more available to people with Type 2 diabetes mellitus (T2DM). Interoperability between these devices and platforms will enable a connected digital ecosystem (CES) that allows people with T2DM to streamline and manage their disease collaboratively with healthcare providers.

OBJECTIVE

We conducted a cross-sectional observational study of patients with T2DM and physicians who treat T2DM in 3 countries to see 1) which patients are likely to participate in a CES, and 2) whether physicians felt patients would benefit clinically from CES participation.

METHODS

- Patients selected from a dedicated web-based platform, used to advertise, recruit, verify eligibility, consent, and enroll participants in the U.S., France, and Germany
- Survey of 197 insulin-dependent adults with T2DM and 33 physicians who treat T2DM
- Patients surveyed for use of health-related devices and interest in participating in a CES
- Physicians surveyed for characteristics of patients whom they believed would benefit clinically from CES use

RESULTS

- Patients across the 3 countries varied in age, sex and socioeconomic status (Table 1).
- More patients in Germany reported having good control of T2DM than in the U.S. or France.
- 44.7% of US patients, 36.4% of German patients, and 46.3% of French patients expressed strong interest in using a CES.
- The best predictors of patient willingness to participate in a CES were cost, medication reminders, and linking blood glucose levels to eating and exercise.
- >80% of physicians thought that a CES could help support their patients in managing their disease.
- >80% of physicians reported interest in the CES features of personalized data tracking (e.g., blood glucose levels, meals, exercise, sleep), medication reminders with recommended insulin doses, personalized recommendations for diet and exercise, and recording insulin doses.



POSTER HIGHLIGHT: Interest in CES use is strong among both patients with type 2 diabetes mellitus and physicians caring for such patients.

Table 1: Demographic characteristics of the patients

	U.S. (n = 114)	Germany (n = 44)	France (n = 39)
Age (yrs), mean ± SD	45 ± 12	62 ± 9	66 ± 9
Female sex, n (%)	76 (67%)	17 (39%)	16 (41%)
BMI (kg/m ²), mean ± SD	35 ± 9	35 ± 9	32 ± 6
Bachelor's degree or higher, n (%)	55 (48%)	8 (18%)	7 (18%)
Full-time employment, n (%)	79 (69%)	5 (11%)	4 (10%)
Current use of insulin, n (%)			
Long-acting, alone or in combination	73 (64%)	31 (71%)	22 (56%)
Short-acting, alone or in combination	31 (27%)	20 (46%)	18 (46%)
Other T2DM management methods, n (%)			
Oral medications	92 (81%)	38 (86%)	32 (82%)
Diet and exercise	70 (61%)	23 (52%)	13 (33%)
Diabetes well controlled, n (%)	68 (60%)	33 (75%)	22 (56%)
Hemoglobin A1c >7.5%, n (%)	30 (26%)	8 (18.2%)	14 (36%)
T2DM-related complications, n (%)			
Cardiovascular disease	5 (4%)	9 (21%)	6 (15%)
Heart failure	1 (1%)	6 (14%)	2 (5%)
Renal disease	3 (3%)	1 (2%)	5 (13%)

Figure 1: CES factors considered very important to patients

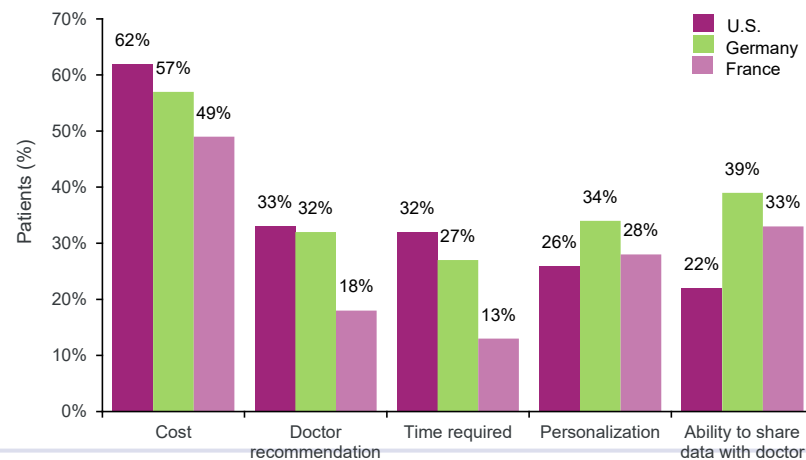


Figure 2: Physician-reported characteristics of patients likely to benefit medically from CES use

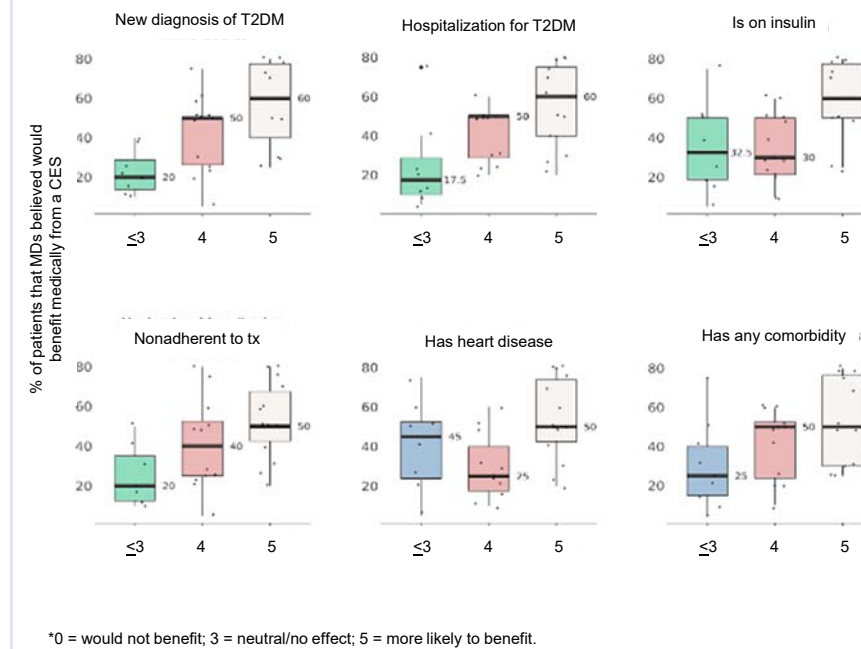
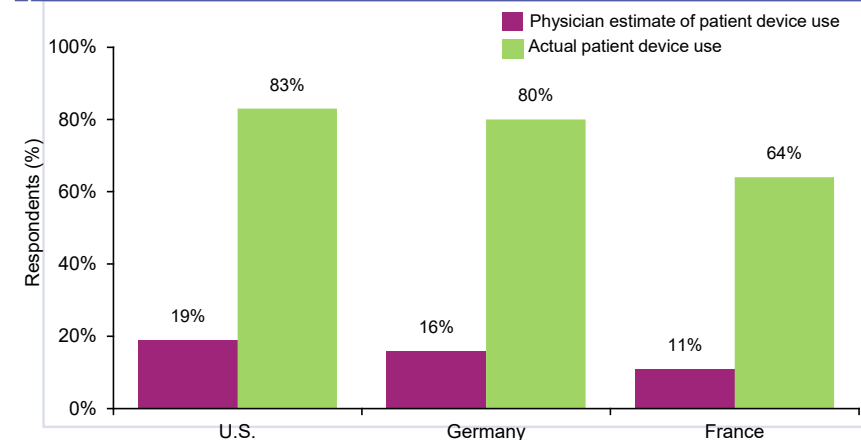


Figure 3: Physician perception of device use among patients with T2DM vs. actual patient device use



RESULTS (continued)

- Physicians thought that newly diagnosed or sicker patients, and those non-adherent to treatment, could benefit most from a CES (Figure 2).
- 79% of patients reported current use of ≥1 connected device/app to manage T2DM—e.g., smart watches, BP monitors, ECGs, scales, socks, and/or glucose monitors. 17% of US, 21% of German, and 36% of French patients reported no current use of a device/app for disease management.
- Physicians believed that <20% of their patients were using a device/app for disease management (Figure 3).

DISCUSSION

- Patients frequently used connected devices, and they generally considered them useful.
- Physicians substantially underestimated the use of connected devices by their patients, but they did express interest in collaborative efforts with their patients and the potential of CES programs. Such collaborations have been shown to play a role in both adherence to and continuation of diabetes treatments,^{1,2} which in turn can improve outcomes.
- The fact that both the patients and physicians indicated strong interest in CES use supports the development and deployment of such tools.

CONCLUSIONS

- Interest in CES use is strong among both patients with T2DM and physicians caring for these patients.
- Additional education is needed to achieve the full potential of such systems to improve self-management and clinical care.

REFERENCES

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- Polonsky WH et al. *Patient Prefer Adherence* 2016; 10: 1299-1307.

DISCLOSURES

EBG, AK, and J-MC are employees of Sanofi, the study sponsor, and may hold stock options in Sanofi. JV, W-NL, and EJD are employees of Evidation Health, Inc., the developer of the Achievement health and research platform, and may hold stock options in Evidation Health, Inc.

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