

THERAPEUTIC IMPACT OF AN INTERVENTION ASSOCIATING PHARMACIST COUNSELING AND THE USE OF A MOBILE HEALTH APPLICATION FOR TYPE 2 DIABETES PATIENTS

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BACKGROUND & OBJECTIVE

Prevalence of type 2 diabetes is high in Belgium (estimated at over 8%, 1 patient out of 3 being unaware of their diagnosis). This study aims at exploring the benefits of the use of mobile technologies combined with health coaching by the community pharmacist to help diabetes patients with their daily life and disease management. The intervention aimed to reinforce the patient's willingness to actively participate in the management of their disease and to adopt favorable health behaviors, in order to increase their level of therapeutic adherence.

SETTING

- A six-month interventional study
- Three data collection periods
- In 21 Belgian cooperative community pharmacies (either Dutch or French speaking)
- Quantitative analysis

METHOD

The program included 7 contacts between the patient and his pharmacist (4 meetings at the pharmacy and 3 calls via the mobile application), one month apart each time, as well as daily access to the application. Data were collected at baseline, after 3 months and after 6 months.

Main outcome measures:

- Therapeutic adherence level: HbA1c rate and MARS-5 score (calculated on the basis of the MARS-5 questionnaire³);
- Cardiovascular risk factors: systolic and diastolic blood pressure, HDL-cholesterol and LDL-cholesterol rates, Body Mass Index and waist circumference.

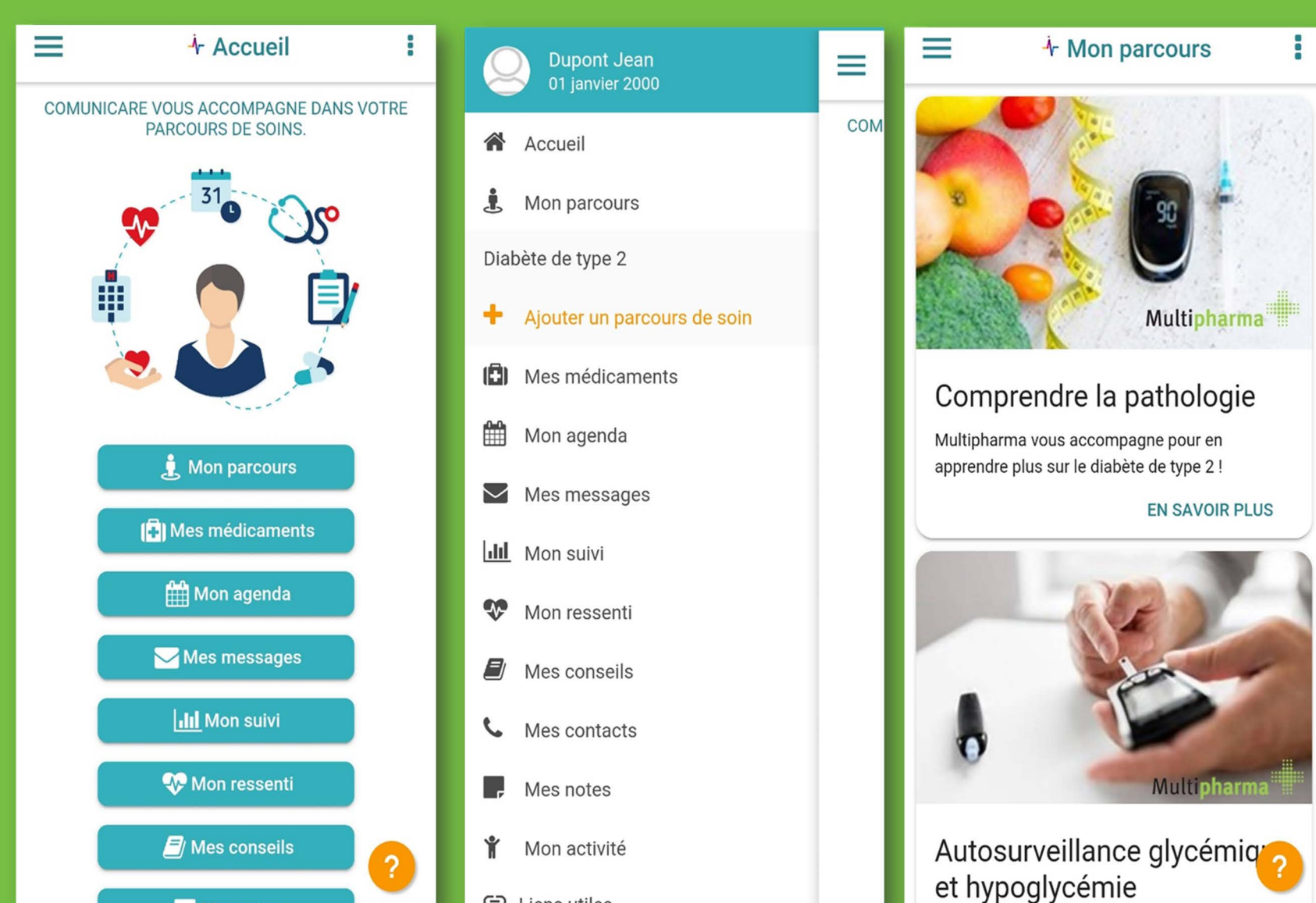
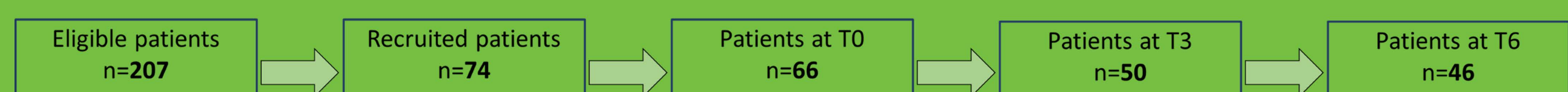
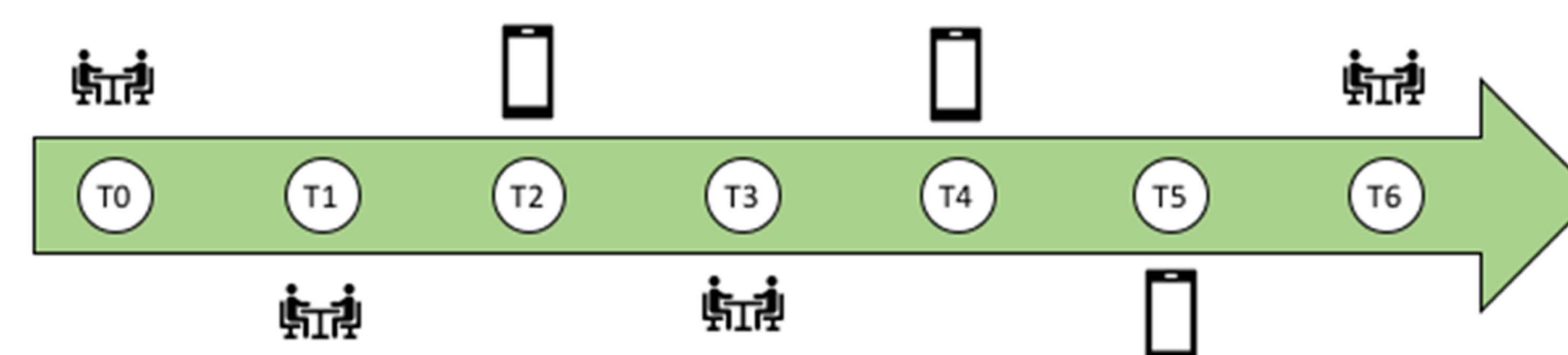


Fig. 1, 2 & 3 : Content of the Comunicare mobile application (patient side)



T0-T3

Adherence rates were high at baseline (mean HbA1c = 6.49%; mean MARS-5 score = 24/25)

Systolic blood pressure decreased by 6.6 mmHg (p=0.01) and waist circumference decreased by 2 cm (p=0.002)

Diastolic blood pressure and weight showed a positive trend

T0-T6

Waist circumference decreased by 2.4 cm (p=0.01)
 All outcomes showed a positive trend or stabilized.

Outcomes	T0 n=66	T3 n=50	T6 n=46	Difference between T0 and T3	p-value	Difference between T3 and T6	p-value	Difference between T0 and T6	p-value
HbA1c (%)	6,49 ± 1,32 6,2(5,7-6,9)	6,14 ± 0,68 6,25(5,68-6,6)	6,21 ± 0,83 6,15(5,73-6,6)	-0,13 ± 0,50 0,0(-0,2-0,1)	0,15	0,05 ± 0,29 0,0(-0,1-0,1)	0,53	-0,1 ± 0,54 0,0(-0,2-0,1)	0,37
HDL-cholesterol (mmol/l)	1,39 ± 0,45 1,33(1,06-1,67)	-	1,47 ± 0,49 1,43(1,13-1,78)	-	-	-	-	0,06 ± 0,24 0,05(0,01-0,18)	0,17
LDL-cholesterol (mmol/l)	2,01 ± 0,93 1,84(1,43-2,44)	-	1,99 ± 0,97 1,71(1,41-2,46)	-	-	-	-	-0,06 ± 0,36 -0,07(-0,30-0,16)	0,35
PAS (mmHg)	135,49 ± 15,05 135(129-144)	130,38 ± 16,51 130,0(120,0-141,0)	135 ± 18,92 135(121,5-144)	-6,64 ± 15,56 -8,0(-17,0-0,0)	<u>0,01</u>	3,83 ± 15,0 3,0(-5,0-11,0)	0,11	-2,48 ± 19,22 -3,0(-15,0-8,50)	0,41
PAD (mmHg)	81,86 ± 9,43 80,0(75,0-90,0)	78,34 ± 13,06 76,0(70,0-87,0)	79,6 ± 11,63 80,0(73,5-86,0)	-2,64 ± 12,15 -3,5(-11,0-3,25)	0,20	-0,03 ± 11,82 -1,0(-6,0-8,0)	0,99	-2,25 ± 11,39 -1,5(-8,25-1,0)	0,07
Weight (kg)	93,03 ± 20,58 91,50(77,05-108,0)	94,50 ± 19,72 91,5(78,95-108,8)	95,21 ± 19,44 90,0(81,95-108,8)	-0,55 ± 2,46 -0,1(-1,93-1,0)	0,14	-0,75 ± 3,43 -0,5(-2,0-1,4)	0,17	-1,32 ± 3,86 -0,95(-3,08-1,43)	0,05
Waist circumference (cm)	111,14 ± 16,41 108,0(99,0-118,5)	108,87 ± 14,60 110,0(101-117,5)	110,58 ± 15,37 112,0(102,88-118,0)	-2,06 ± 4,13 -1,0(-4,0-0,0)	<u>0,002</u>	-0,5 ± 4,46 -0,5(-3,0-2,0)	0,49	-2,44 ± 4,92 -1,5(-5,75-0,0)	<u>0,01</u>

Fig. 4: Description of clinical outcomes and comparison of their evolution at T0, T3 and T6

CONCLUSION

This study showed that counseling by the community pharmacist, combined with the use of a mobile health application, can achieve the therapeutic intent of physician-initiated therapy and have a positive impact on the management of the type 2 diabetic patients as well as on outcomes considered as cardiovascular risk factors.

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