Use of Log Data to Evaluate a Heart Failure Telemonitoring and Persuasive Coaching Technology

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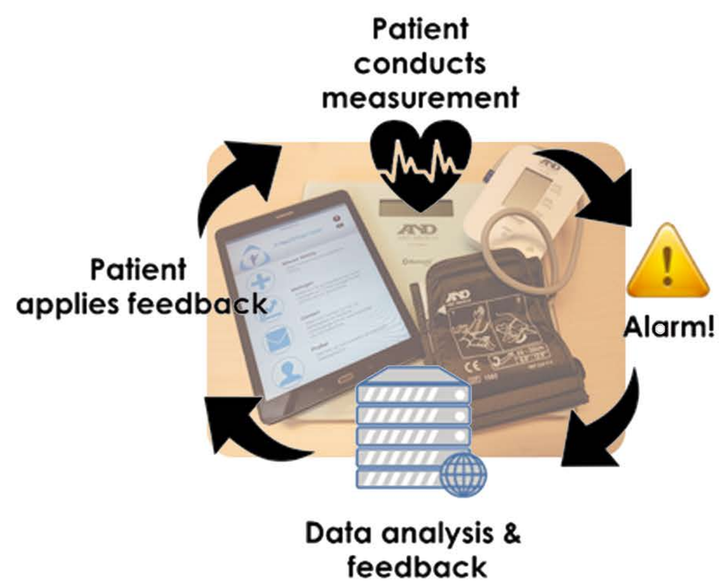
[BACKGROUND]

Integrating persuasive coaching [1] in a telemonitoring technology is a potential solution to provide self-management support to patients living with Chronic Congestive Heart Failure.

The **iMediSense** platform allows patients to measure their blood pressure, heart rate, weight, and report on their experienced symptoms on a daily basis.

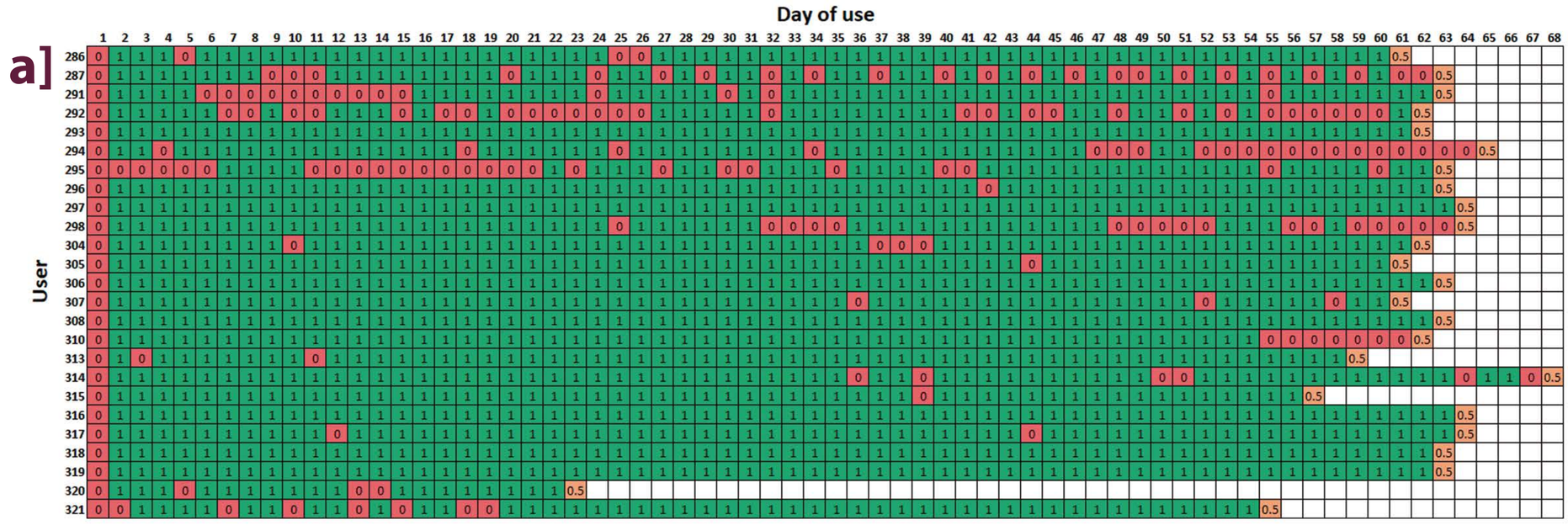


[AIM] In this poster we propose that log data analysis [2] is a method that facilitates the integration of persuasive coaching and telemonitoring, and present a case study based on Heart Failure and the iMediSense technology as an example.

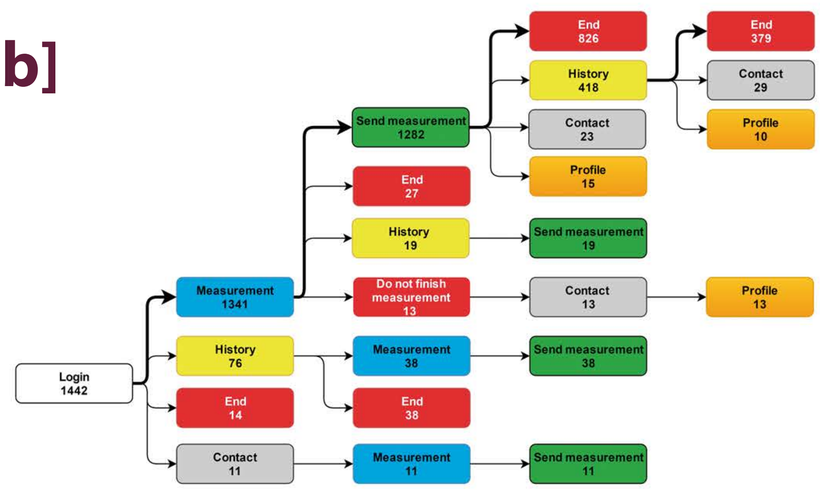
[METHOD]

A pilot study was conducted to determine the use, usability, and usefulness for practice of iMediSense. Each patient (n=25) used iMediSense daily for 2 months. To evaluate the use of the system, log data was used within a mixed-methods approach, also including interviews with patients (n=25), caregivers (n=7; HF nurses, cardiologists, GP), and stakeholders (n=5; developer, product owner, financer and facilitator), as well as usability tests (think-aloud method) of the patients interface (n=10).

a]



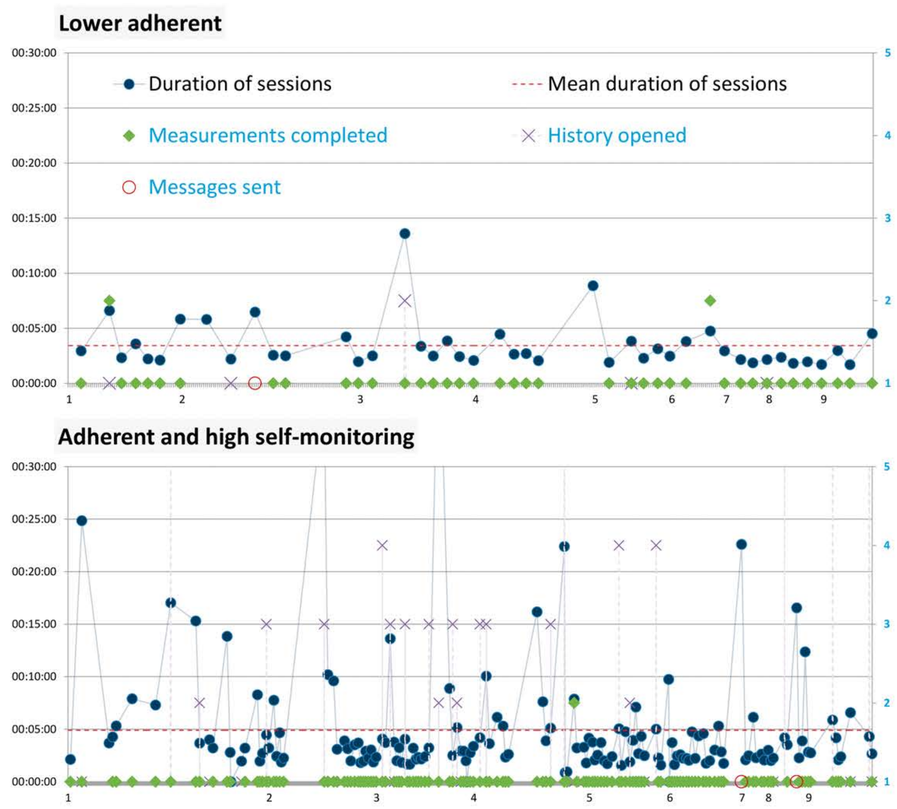
b]



c]

Action	#Sessions	% Sessions	#Patients
Send measurement	1426	90.7	25
Open history	612	38.9	25
Open contact menu	126	8.0	19
Send a message	38	2.4	13
Open user manual	13	0.8	8

d]



[RESULTS]

We observed that:

a] adherence rate was very high (90%)[d]

b] most common navigation route showed a tunneled and reduced way to self-monitor

c] certain features of iMediSense were barely used by the patients, such as the message function

d] usage could notably vary and represent distinct patients' needs and goals

[CONCLUSION]

Log data can provide relevant evidence to understand the use of technologies, focusing on data that is useful to provide effective support [3]. The use of log data in research can be effective for evaluation purposes but also to guide development by allowing further understanding and improvement in terms of persuasiveness.

Key references

1. Lentferink, A.J., Oldenhuis, H.K., de Groot, M., Polstra, L., Velthuijsen, H., van Gemert-Pijnen, J.E.: *Key Components in eHealth Interventions Combining Self-Tracking and Persuasive eCoaching to Promote a Healthier Lifestyle: A Scoping Review.* (2017).

2. Sieverink, F., Kelders, S., Poel, M., van Gemert-Pijnen, L.: *Opening the Black Box of Electronic Health: Collecting, Analyzing, and Interpreting Log Data.* (2017).

3. Sieverink F, Kelders SM, van Gemert-Pijnen JE. *Clarifying the Concept of Adherence to eHealth Technology: Systematic Review on When Usage Becomes Adherence.* (2017).

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