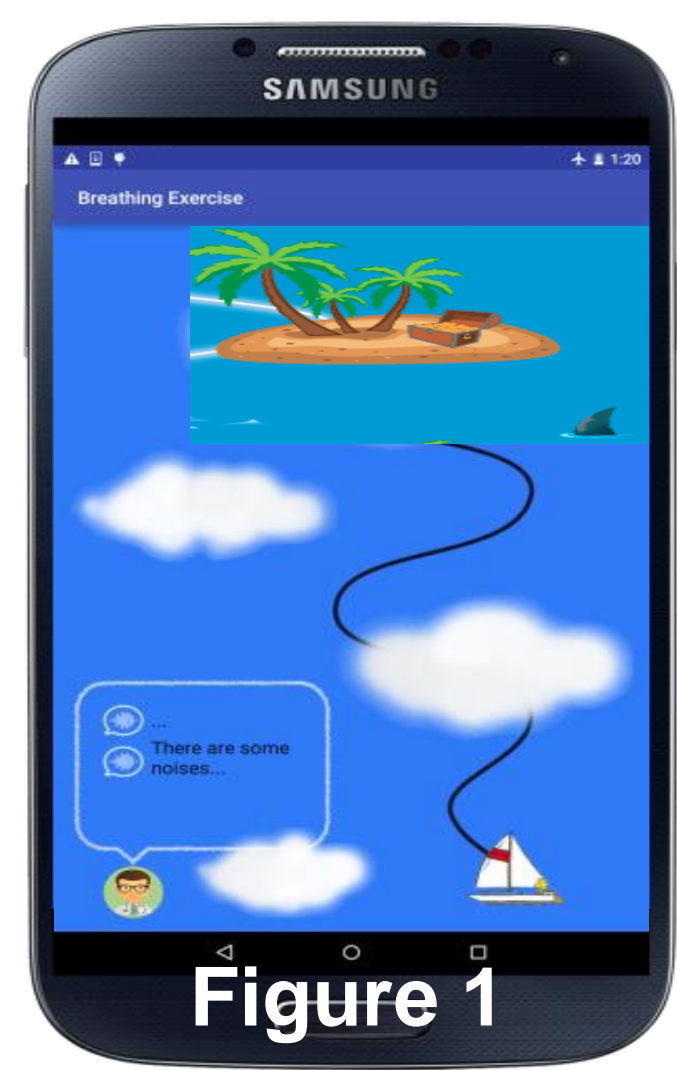


Telemedicine Therapy for Overweight Adolescents: First Results of a Novel Smartphone App Intervention using a Behavioural Health Platform*

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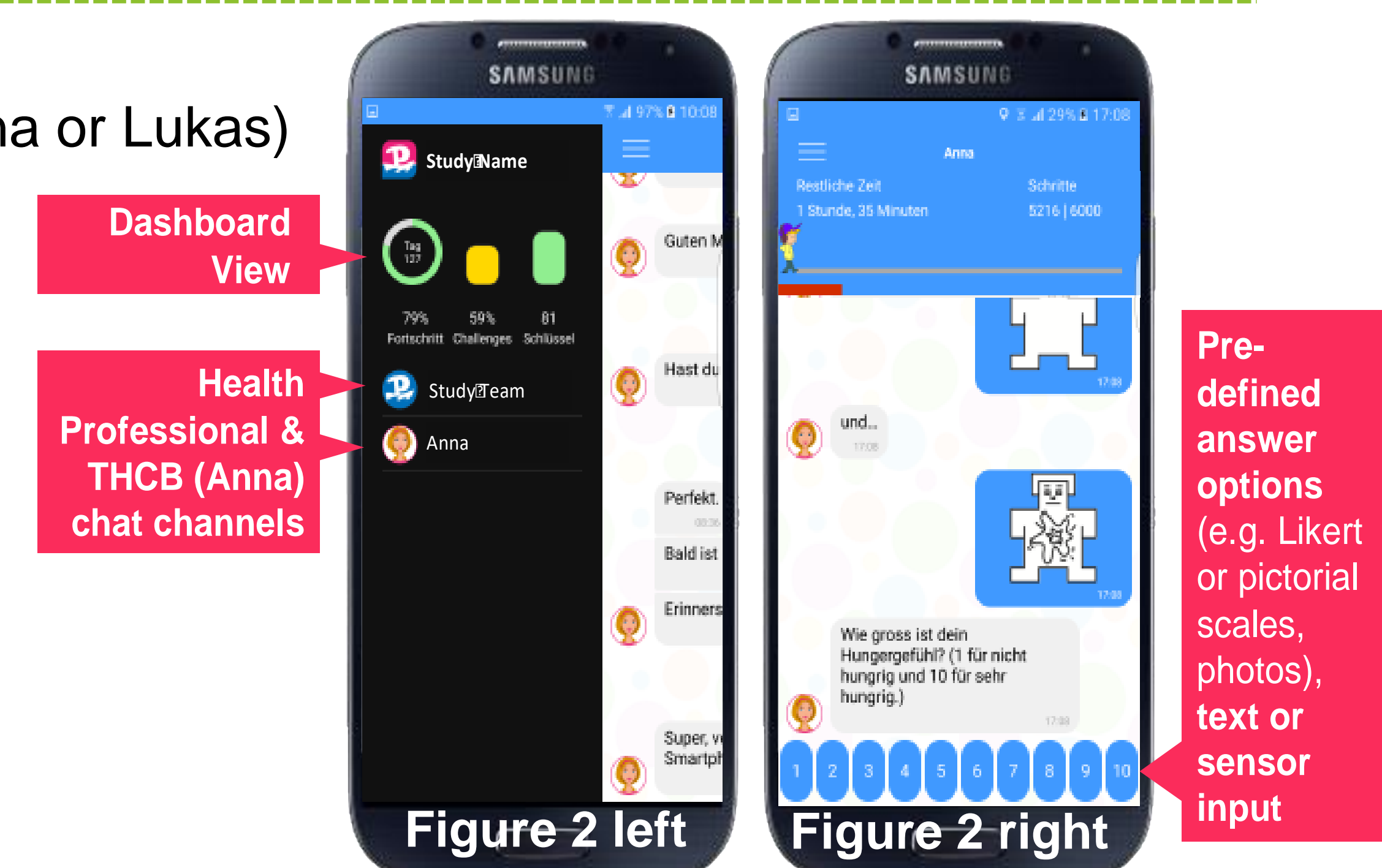


Introduction

- Despite the number of digital based health information systems increases steadily, the effectiveness in reaching long term health goals or life style change mostly remain unproven.
- Therefore it is essential to find simple and novel therapeutic approaches.
- Effects of text-based healthcare chatbots (THCB) have been proven (1) & tested in public health interventions against alcohol or tobacco (2).
- **The aim:** test a novel design of a health app for overweight adolescents, whether it supports their motivation to participate in a lifestyle intervention including relaxation and activity exercises supported by a THCB.

Methods

- 12-month randomized controlled study
- Mobile chat app with game character based on an open source platform with a THCB (Anna or Lukas)
- ✓ Patients could chat with the THCBs with the help of pre-defined answer options (fig.1, right part).
- ✓ Direct communication between patients and health professionals (HP) via a second chat channel (fig. 1, left part).
- ✓ Sensor integration provided measurement of physical activity.
- daily challenges during 24 weeks (steps per day, breathing exercises, photos of nutrition and home environment, questions on well-being and eating habits)
- Patients could earn virtual rewards in case of 24 weeks intensive phase of intervention with 4 on-site visits will be compared to a treatment-as-usual group with monthly visits.
- 1° outcome: BMI-z-score after 12 months
- Other outcomes: compliance with therapy, fitness-test; questionnaires on eating habits & disorders, mental health and quality of life



Results

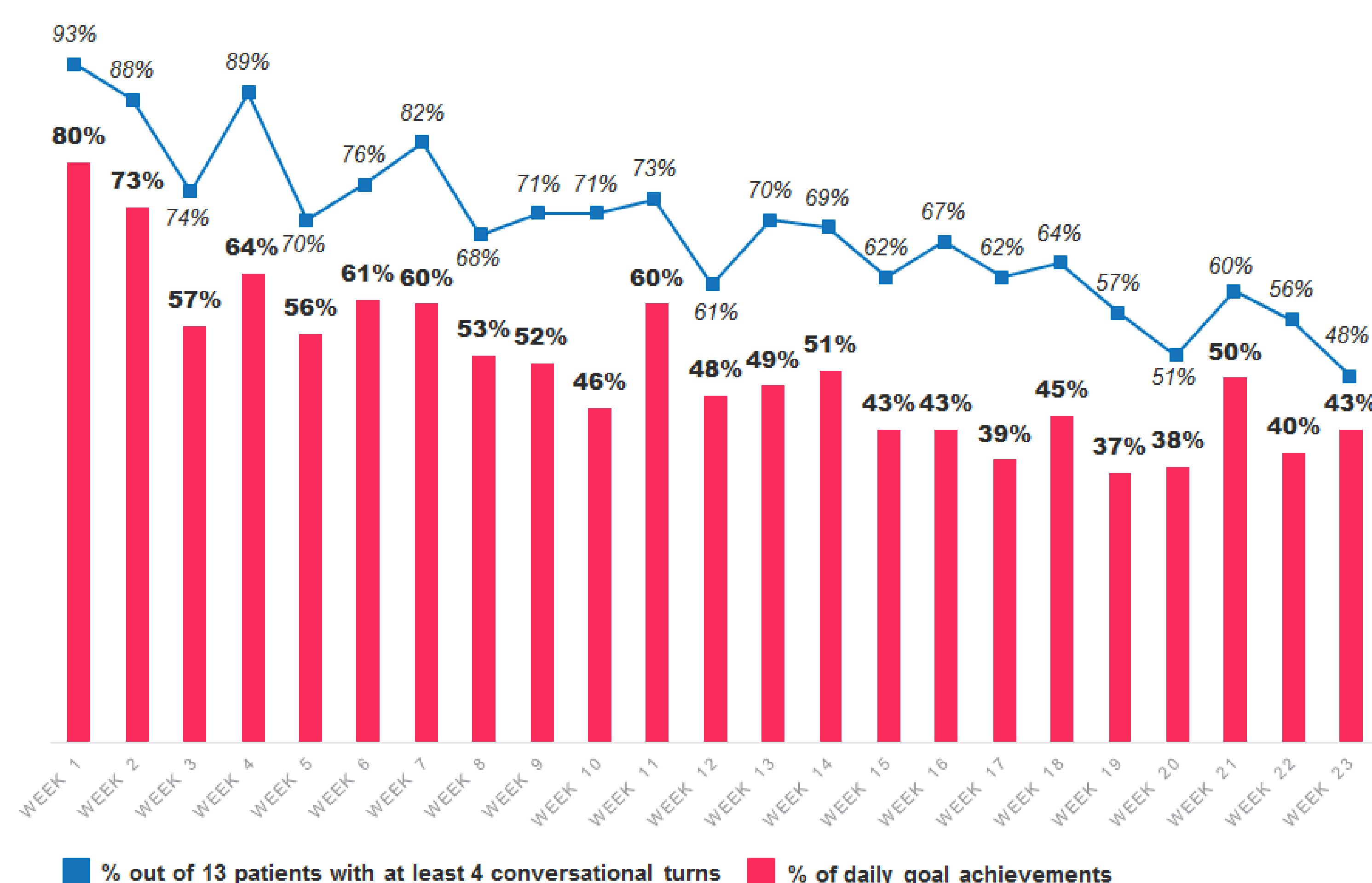


Figure 3

- At start: 22 patients (39% girls), no difference in age and BMI-SDS in both groups: 14.2 y (11.9 – 17); BMI-SDS 2.56 SD (1.7 – 3.5)
- At 5.5 months evaluation: 20 patients (13 PM2, 7 controls, 2 drop-out for psychiatric problems)
- 18064 conversational turns (CTs) during 5.5 months & 13 patients, i.e. 8.6 CTs per Day
- 67% of the patients had >4 THCB CT/day
- 43% fulfilled daily challenges completely and successfully (fig. 3)
- Open chat questions, mainly on technical issues, took place in 3.4% of the overall CTs
- Direct communication between patients and health professionals (HP) triggered 4.1 CTs/patient/months (fig. 4)
- ✓ About missing interaction between THCB and patient >3 days
- ✓ Non-use of the smartphone for a longer period
- ✓ Abroad on Holidays or no internet access

Conclusion

- High compliance with the app services over half a year may be explained by
- the rewarding game system and low threshold of communication with health professionals,
 - the peer character of the THCB and
 - the perceived usefulness of the THCB integrated in the personalized smartphone, a familiar medium for adolescents.
- Further analyses will explore, whether THCB usage is associated with positive health effects.

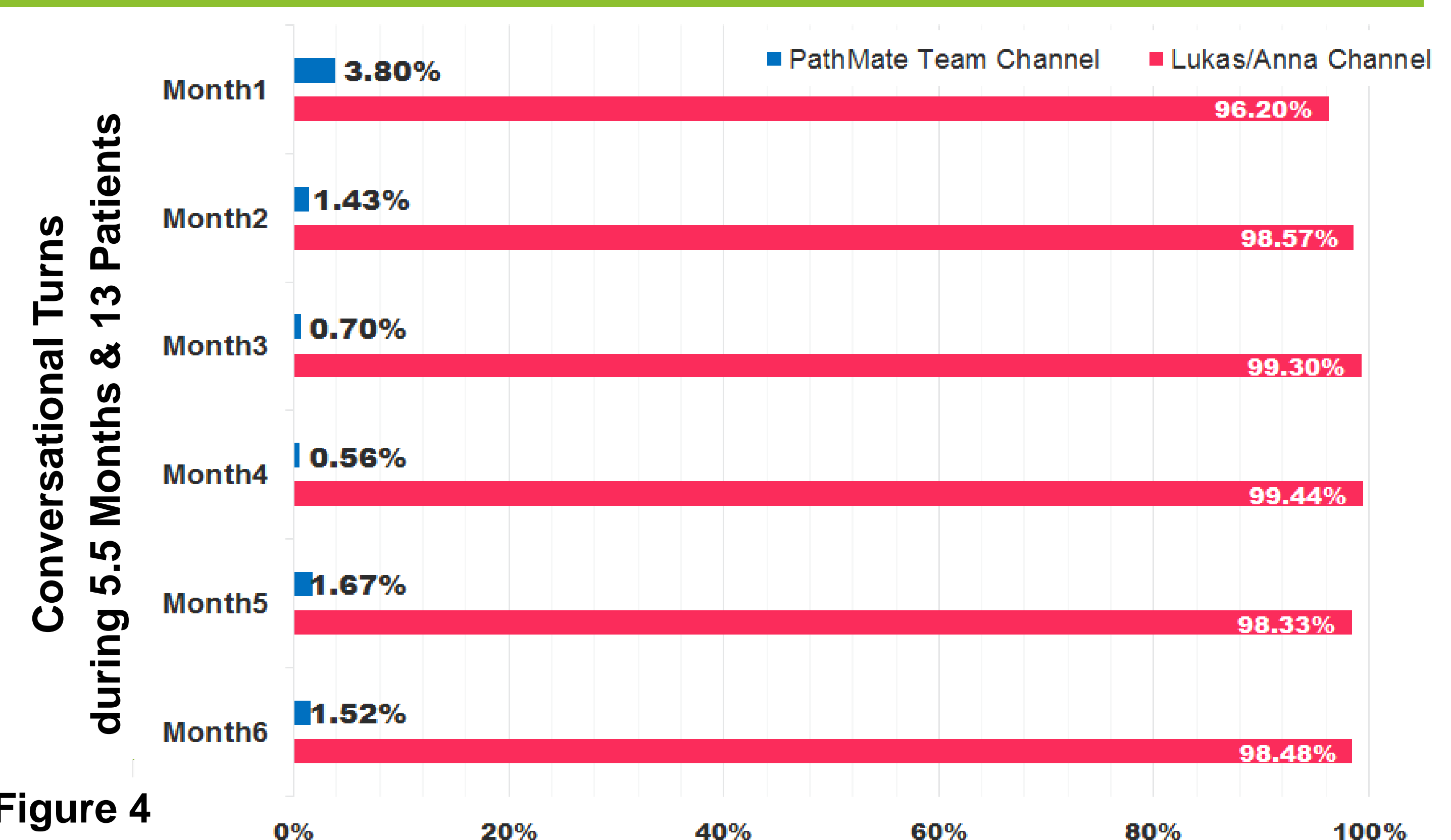


Figure 4

References

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