Non-patient POC test overview

Objective

To test usability & effectiveness of Popit solution in improving medication adherence.

Method

- Conduct surveys during 4 checkpoints for quantitative and qualitative analysis.
- Other results include Popit data and Medication memo sheets

Non-Patient PoC Design

20 internal participants (from JPKK/JJD and IH team)

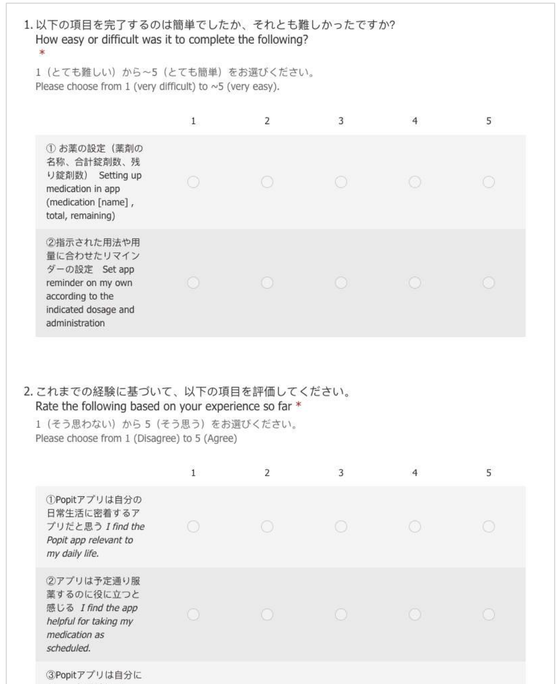
16 days (2021 Oct 21 - Nov 5)

3 scenarios, each for 5 days

- Day 1 - Day 5: **App only**
- Day 6 - Day 10: **App + device**
- Day 11 - Day 15: **App + device + HCP message***

Throughout the test duration, participants will also fill in the medication memo

4 sets of surveys



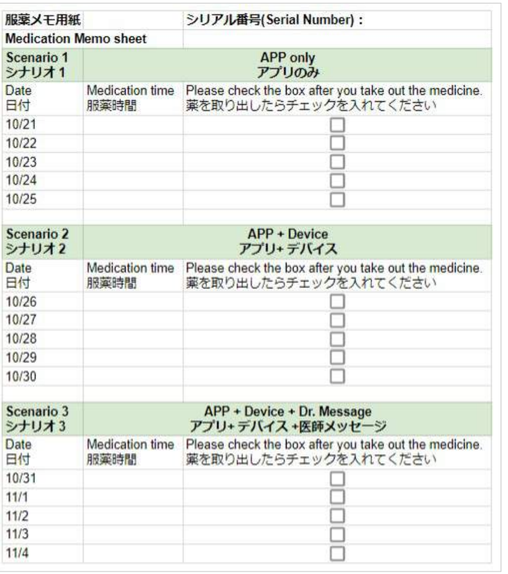
1. 以下の項目を完了するのは簡単でしたか、それとも難しかったですか?
How easy or difficult was it to complete the following?
*
1（とても難しい）から~5（とても簡単）をお選びください。
Please choose from 1 (very difficult) to ~5 (very easy).

	1	2	3	4	5
① お薬の設定（薬剤の名称、合計錠剤数、残り錠剤数） Setting up medication in app (medication [name] , total, remaining)					
②指示された用法や用量に合わせたリマインダーの設定 Set app reminder on my own according to the indicated dosage and administration					

2. これまでの経験に基づいて、以下の項目を評価してください。
Rate the following based on your experience so far *
1（そう思わない）から 5（そう思う）をお選びください。
Please choose from 1 (Disagree) to 5 (Agree)

	1	2	3	4	5
①Popitアプリは自分の日常生活に密着するアプリだと思う *I find the Popit app relevant to my daily life.*					
②アプリは予定通り服薬するのに役に立つと感じる *I find the app helpful for taking my medication as scheduled.*					
③Popitアプリは自分に					

Medication memo

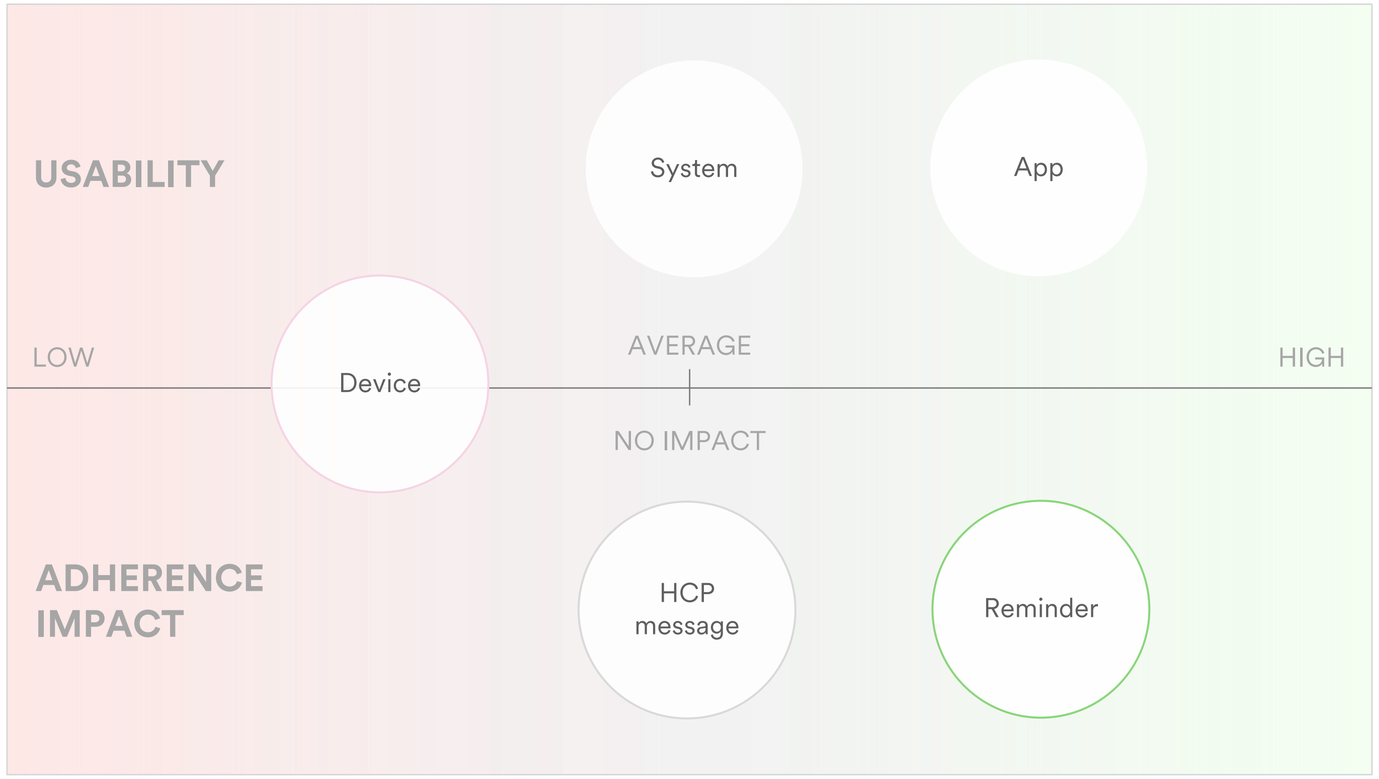


服薬メモ用紙		シリアル番号(Serial Number)：
Medication Memo sheet		
Scenario 1 シナリオ 1		APP only アプリのみ
Date 日付	Medication time 服薬時間	Please check the box after you take out the medicine. 薬を取り出したらチェックを入れてください
10/21		☐
10/22		☐
10/23		☐
10/24		☐
10/25		☐
Scenario 2 シナリオ 2		APP + Device アプリ+ デバイス
Date 日付	Medication time 服薬時間	Please check the box after you take out the medicine. 薬を取り出したらチェックを入れてください
10/26		☐
10/27		☐
10/28		☐
10/29		☐
10/30		☐
Scenario 3 シナリオ 3		APP + Device + Dr. Message アプリ+ デバイス +医師メッセージ
Date 日付	Medication time 服薬時間	Please check the box after you take out the medicine. 薬を取り出したらチェックを入れてください
10/31		☐
11/1		☐
11/2		☐
11/3		☐
11/4		☐

* Qualitative result & participants' verbatims

Non-patient POC result summary

SURVEY COLLECTION (out of 20)	Day 5	Day 10	Day 15	Day 16	MEMO-SHEET
Number of surveys collected	20	19	19	17	14
Collection rate	100%	95%	95%	85%	70%



Key findings

- **App reminders** had positive medication adherence impact.
- **Popit Sense** negatively impacted adherence. The usability is also low, as many participants experienced issues using the device.
- **HCP message's** had insignificant impact on adherence

Key insights

- Prefer to have **customisable** reminder that suits the different lifestyle needs
- Prefer to have **close-loop** solution that is **reliable** and **accurate**. This is regardless of whether it is a hardware or software solution
- **Personalized** message based on condition, behavior and motivation is more helpful

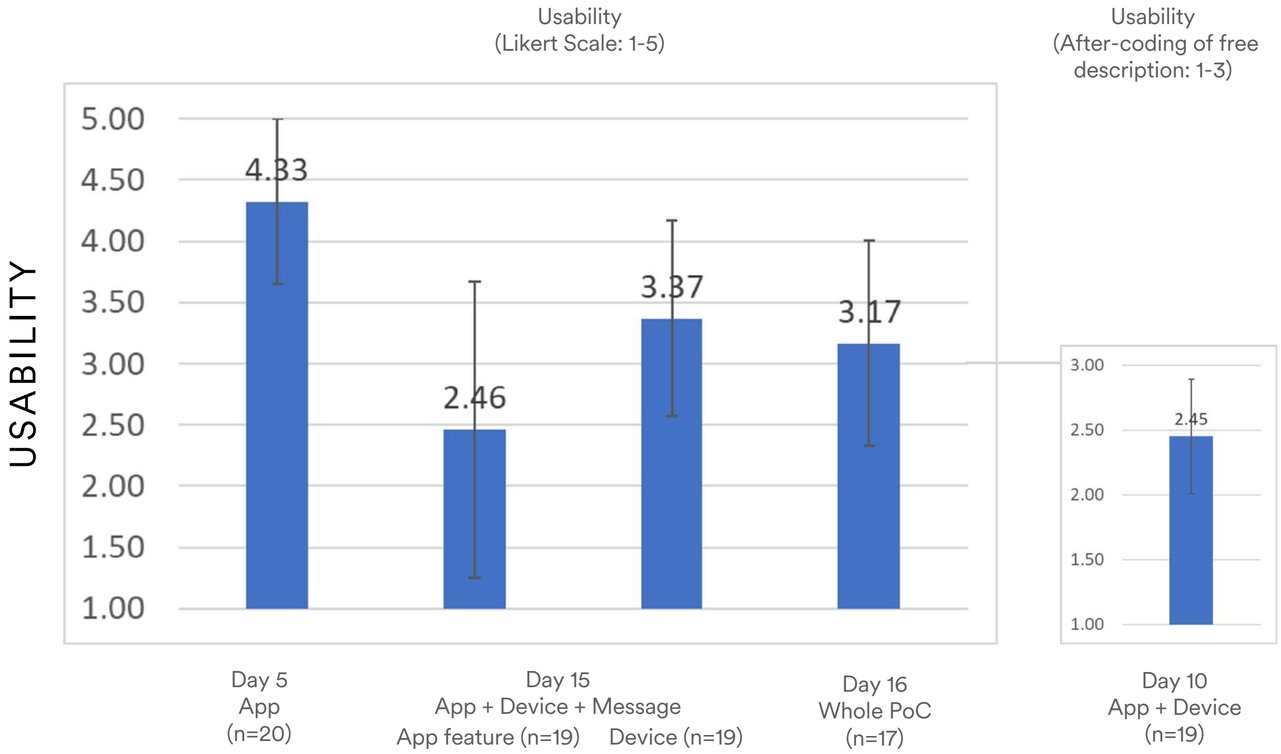
Quantitative | Analysis led by IH team

Qualitative | Analysis led by JJD team

Usability results over time

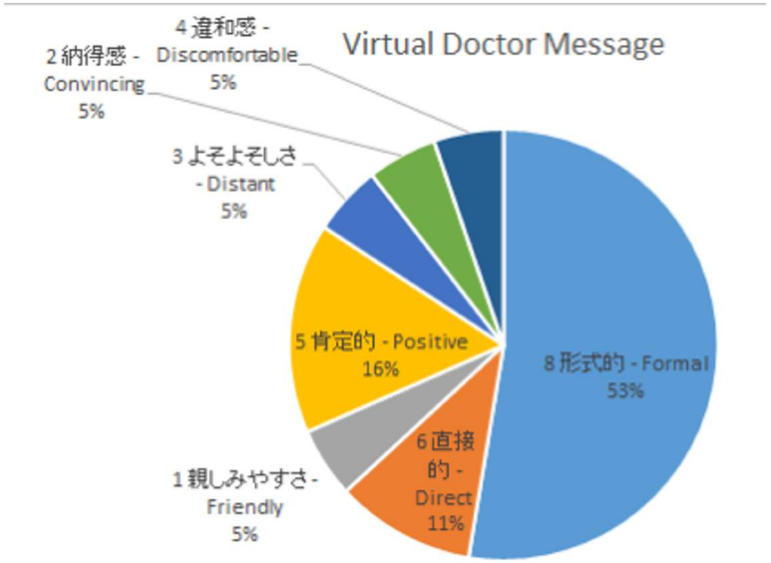
Quantitative

Results from day 5 – day 10 – day 15 – day 16



Low usability score on day 15 for app related features such as history & score

Many issue reported related to usage of the device

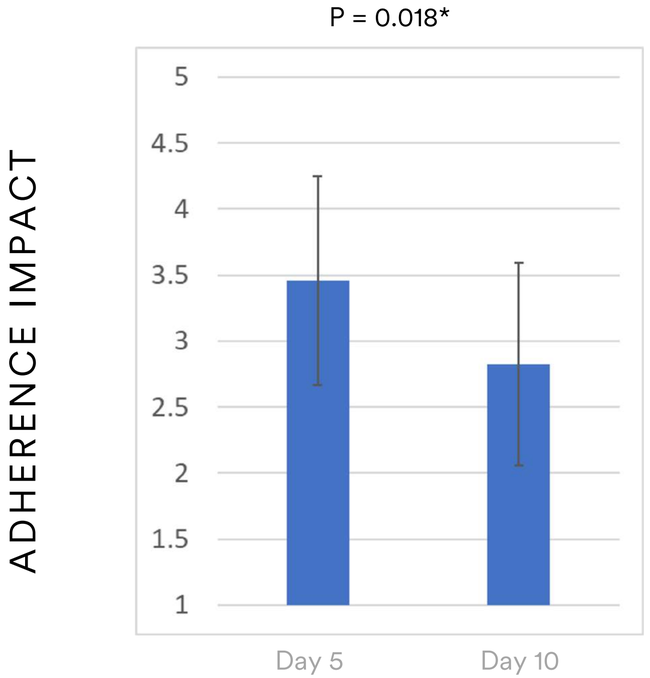


Over 50% of participants find the virtual HCP's message "Formal"

Adherence impact over time

Changes from day 5 – day 10 – day 15

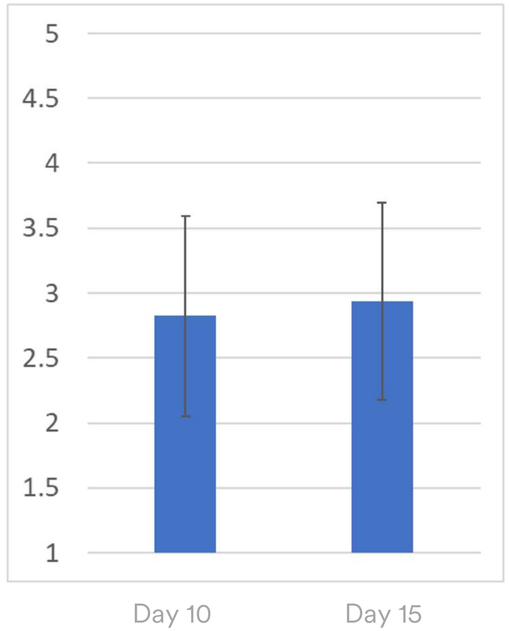
P = 0.018*



Device had negative impact on medication adherence

The t-test showed that adherence impact was significantly lower on Day 10 (app + device) than on Day 5 (app only).

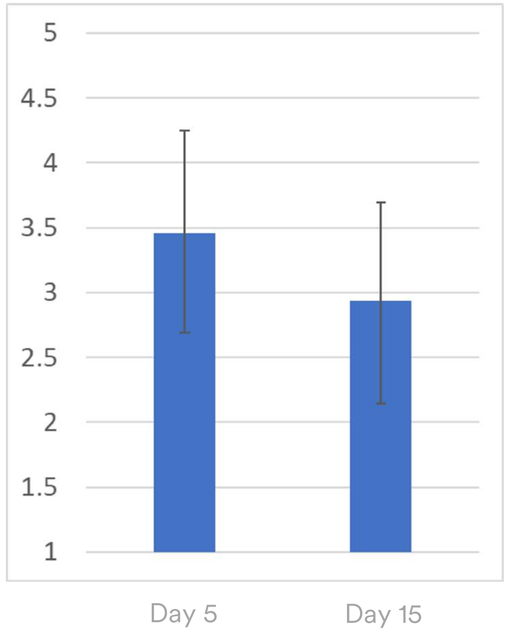
P = 0.659



HCP's message had no impact on medication adherence

The t-test showed little adherence impact difference between Day 10 (app + device) and Day 15 (app + device + virtual doctor message).

P = 0.050*



Overall adherence impact decreased

T-test showed significantly lower adherence impact on Day 15 (app + device + virtual doctor message) than on Day 5 (app only)

* Method used

Quantitative

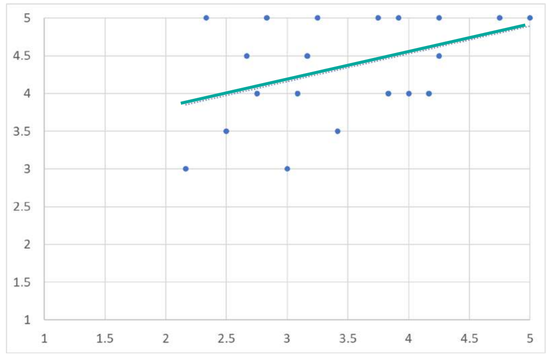
Usability affects adherence impact

Changes from day 5 – day 10 – day 15

ADHERENCE IMPACT

USABILITY

n=20, R^2=0.438

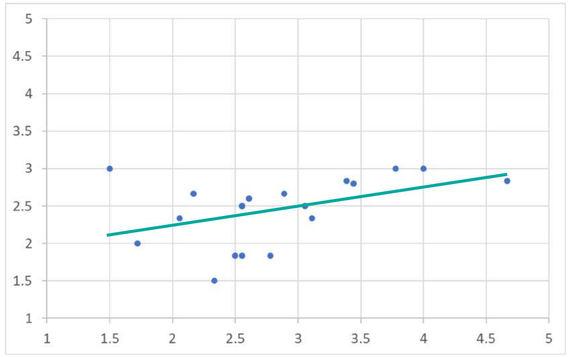


Day 5
App

Positive correlation between usability & adherence impact

The more satisfied users are with the usability of app, the stronger the impact on adherence.

n=19, R^2=0.577

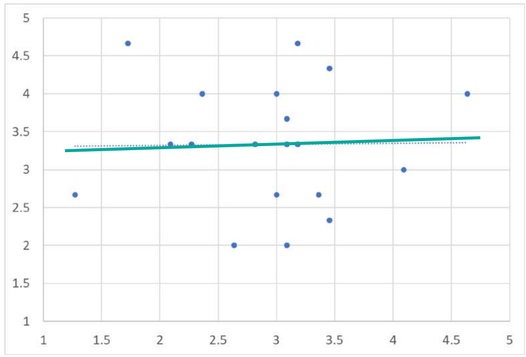


Day 10
App + Device

Positive correlation between usability & adherence impact

The more satisfied users are with the usability of app and device, the stronger the impact on adherence.

n=19, R^2=0.013

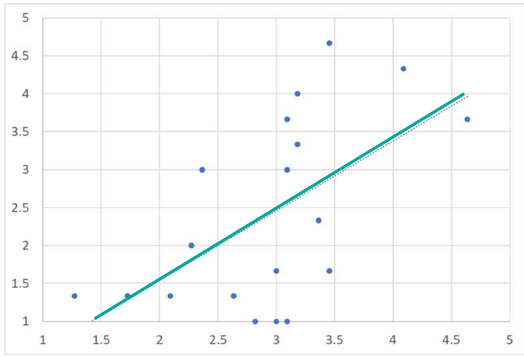


Day 15
App + Device + Msg
(Part of device)

No correlation between usability & adherence impact

Users who do not find much value in using devices find using only apps is sufficient, even if they may continue to use devices.

n=19, R^2=0.577



Day 15
App + Device + Msg
(Part of app)

Positive correlation between usability & adherence impact

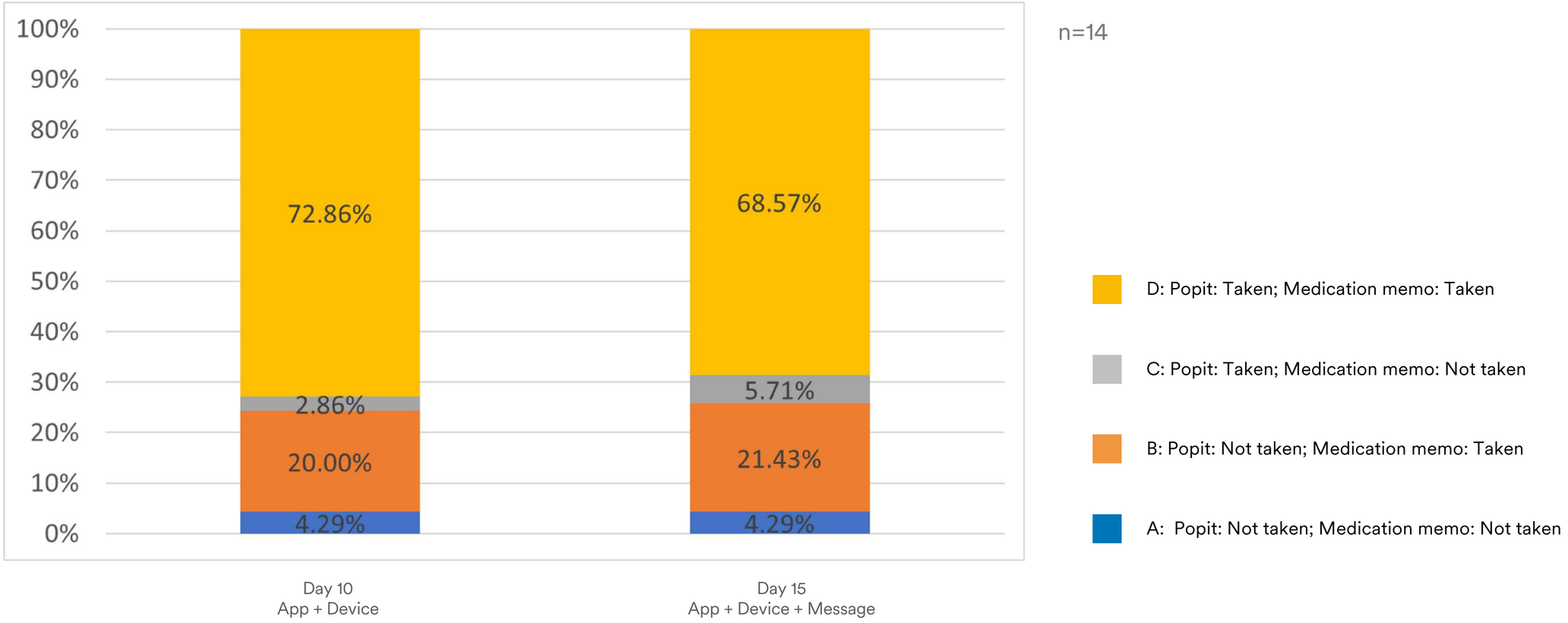
Users who felt strongly about the impact on adherence were also more likely to use features other than reminders (score and history).

* Method used

Comparison of Popit log data and medication data

Quantitative

- Scenario 1 was excluded from the analysis because in many cases, participants were not able to set reminders and Popit log data was not collected correctly.
- The ratio of pattern B to pattern C is about 23% to 27%. In about a quarter of cases, the records detected by the device do not match the data described by the participant.



Qualitative

Participants shared different emotional experiences towards the usage of Popit Sense (Device)

Despite the low usability and adherence impact, some find the device “A little entertainment & extraordinary (少しのエンタメ感&非日常)”

Although, many has reported malfunctioning and inaccuracy of device; and deliberate handling is required to use the device properly.

In this case, Popit Sense requires certain level of autonomy from users.

A hardware device may be useful or act as an additional motivator if the solution is accurate and reliable.

#1 "... I usually feel that taking medicine = duty & everyday, but when I use the device, I feel that taking medicine = a **little entertainment** & extraordinary..."

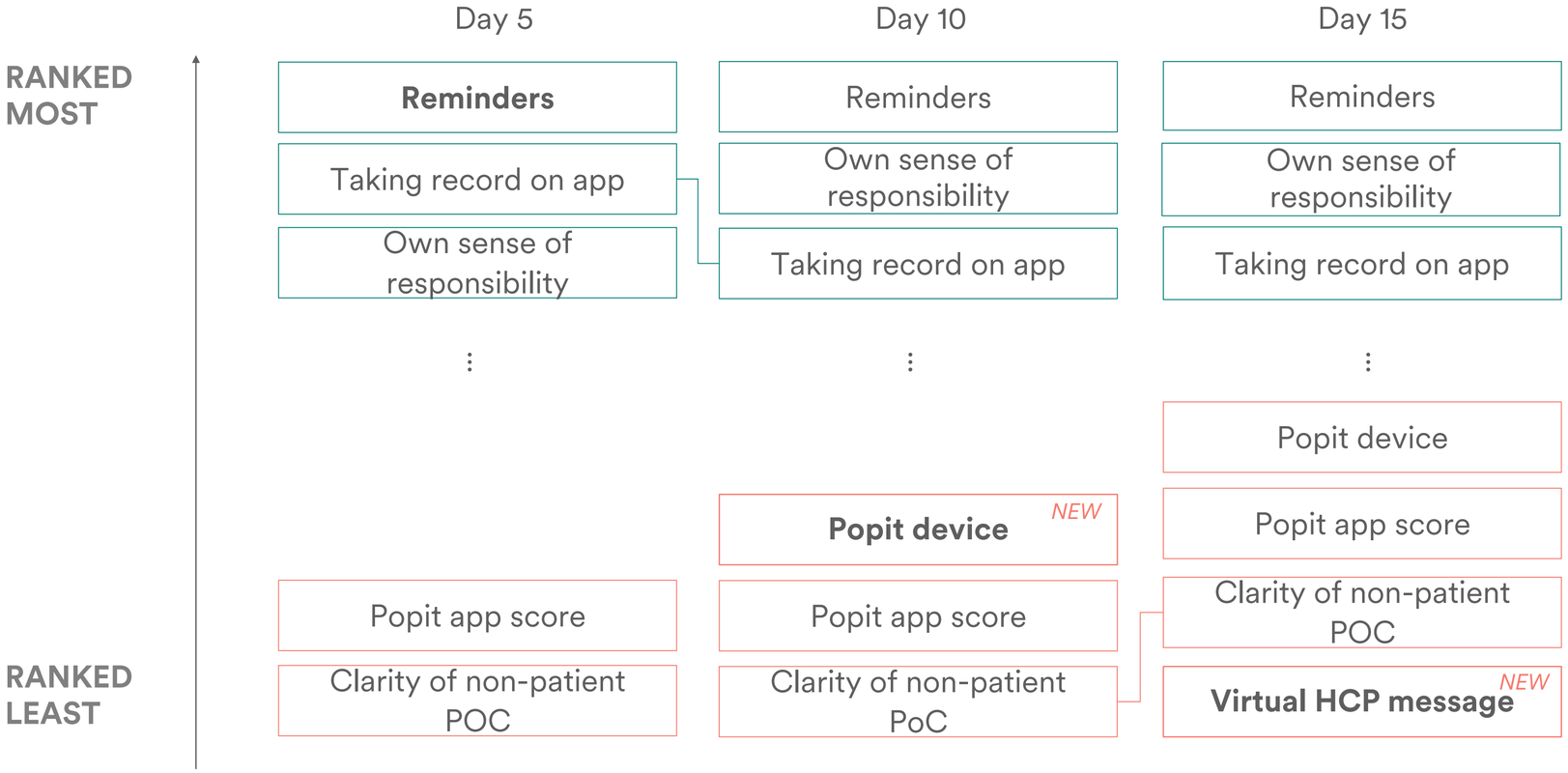
#4 "I think that the **device malfunctions** and the time it takes to complete booting makes medication management **troublesome**."

#2 "...Even if I like the idea of having a physical device, I didn't find this solution to be most helpful to adopt it to my routine."

* Qualitative analysis based on result from the surveys & participants’ verbatims

Qualitative

Reminder was consistently ranked as the top motivational factor throughout the test period



#16 "I think I had **little motivation** to take the pills but because I had to take it as part of this non-Patient POC, I did it. The **reminder** helps to remind me when I forget to"

#4 "In particular, I felt that the **device** itself did not lead to motivation."

I received the **doctor's message** only once this time, so I wasn't motivated by it. I thought it might be more motivating if I came every day.

The additional factors of Popit device & HCP message didn't contribute as additional motivators towards medication behavior.

* Qualitative analysis based on result from the surveys & participants' verbatims

Qualitative

Participants' choice of top challenges and opportunities with regards to medication adherence

TOP CHALLENGES

1st Forgetfulness

"I can't remember if I've taken the medication today."

2nd Busy schedule

"I don't see the importance, other priorities come in the way."

3rd Lack of motivation

"After a while, I lose motivation (improvement) ... (no visible result)"

OPPORTUNITIES

In-control	To see treatment plan progress and medication schedule
Contextual relevancy	App notifies them to bring meds if heading out of home
Accountability	To notify family, friends and peers, or to have a closed-loop solution
Flexibility	Customizable mode of reminder
Clearer cue	More obvious visual or sound indicators as reminders
Treatment suitability	Recommendations based on individual habits
Gamification & rewards	Gamified elements, points or cash rewards, enhanced UI
Goal setting	Reward themselves after reaching milestones
Personalization	Relevant and targeted solutions or messages

WHAT INFO THEY WISH TO SEE ABOUT ADHERENCE

Outcome	The outcomes, especially benefits of adhering to medication
Improvement	Areas of improvement to their medication habits
More details	View medication details, record symptoms & side effects, check med status

* Qualitative analysis based on result from the surveys & participants' verbatims

Qualitative

Participants look for clear communication, respectful usage and preservation of anonymity when it comes to data

I can't tell (how I feel about the data collected) because I don't know what's being collected.

Before collecting data, I think it is necessary to show concretely and clearly how to use it.

"I would share these information only if it is necessary for me to do so. "

"I am willing to share different part of my health data to improve treatment methods and research purposes as long as my anonymity is preserved. However, I have very low trust that this information will be guarded with most respect. "

Data collection

Unaware of the kind of data is being collected

Concerned about the reliability of data being collected

Prefer to share only data that is essential and necessary

Most willing to share lifestyle data; conservative about identifiable data

Data process

Concern over data privacy, especially identifiable data and its usage

Prefer data to be handled with care and respect, however, participant feel that there's no way to guarantee that

Wish data is being kept anonymously

Data usage

Believe data can contribute to future use

Wish to have upfront and transparent communication about data usage

Higher preference for data to be used for themselves than used for other studies

More open to share identifiable or sensitive data to HCP than an app

* Qualitative analysis based on result from the surveys & participants' verbatims