Appendix: Topic guide for the semi-structured interview

The initial topic guide for the semi-structured qualitative interview.

Main questions	Additional questions	• Clarifying questions
(A) Have you made any adaptations / changes to help you use your nebuliser?	• Clarify what adaptations / changes were made e.g. changes to routines, changes to lifestyle. • Clarify what makes it difficult for the participant to use his / her nebuliser … • Clarify what strategies the participant use to overcome those difficulties … • Clarify what makes it easier for the participant to use his / her nebuliser … • Any suggestions / advice from the participant to help others use their nebuliser?	• Can you please clarify what you meant by …? • Can you please expand a little on …? • Can you please give some examples of …? • In particular, what do you think of …?
(B) Have you used reminders / cues / routines to help you remember to use your nebuliser?	• Clarify what reminders / cues / routines that the participant has tried … • Clarify what reminders / cues / routines work best for the participant … • Any perceived advantages of a particular reminders / cues / routines? • Any perceived disadvantages of a particular reminders / cues / routines?	

Additional questions for the iterated topic guide:

• Check whether in work / study.
• What is the relationship between work / study with routine?
• How does the use of nebuliser vary with the day of the week? Why?
• How does the use of nebuliser vary with the time of day? Why?
• What happens when "out of routine" – e.g. holidays
• What is the support from family to manage nebuliser use (parents / partners / others)?
• What is the support from the clinical team? What is the role of individual team members? Helpful / not?
• If people describe symptoms – explore more.
• If people describe effects of poor adherence / benefit of good adherence – explore more.

<u>Appendix: The 28 statements used in the questionnaire</u>

1. Pleasure and fun sometimes keep me from getting work done – *to measure self-regulation*

2. I do not like to make appointments too far in advance because I do not know what might come up – *to measure life chaos*

3. My life is unstable – *to measure life chaos*

4. I do certain things that are bad for me, if they are fun – *to measure self-regulation*

5. Keeping a schedule is difficult for me – *to measure life chaos*

6. I often act without thinking through all the alternatives – *to measure self-regulation*

7. I am good at resisting temptation – *to measure self-regulation*

8. My life is organised – *to measure life chaos*

9. I wish I had more self-discipline – *to measure self-regulation*

10. I have a hard time breaking bad habits – *to measure self-regulation*

11. My routine is the same from week to week – *to measure life chaos*

12. My daily activities from week to week are unpredictable – *to measure life chaos*

13. People would say that I have iron self- discipline – *to measure self-regulation*

14. Sometimes I can't stop myself from doing something, even if I know it is wrong – *to measure self-regulation*

15. Using my nebuliser is something I do without thinking – *to measure non-specific habit*

16. My nebuliser treatment is too time-consuming to manage within my daily life – *to measure 'subjective' treatment burden*

17. Using my nebuliser is something I do without having to consciously remember – *to measure non-specific habit*

18. If I wanted to, nothing gets in the way of me using my nebuliser – *to measure opportunity*

19. If my nebuliser is working properly, I would feel capable of using my nebuliser – *to measure capability*

20. I intend to use my nebuliser – *to measure intention*

21. Using my nebuliser is something I do automatically – *to measure non-specific habit*

22. I feel I have adequate opportunity to use my nebuliser – *to measure opportunity*

23. Using my nebuliser is something I start doing before I realise I'm doing it – *to measure non-specific habit*

24. I want to use my nebuliser – *to measure intention*

25. My nebuliser treatment makes my daily life more difficult – *to measure 'subjective' treatment burden*

26. I could overcome barriers to using my nebuliser if I invest the necessary effort – *to measure capability (self-efficacy)*

27. Deciding to use my nebuliser is something I do without having to consciously remember – *to measure instigation habit*

28. Once I have decided to use my nebuliser, using my nebuliser is something I do without having to consciously remember – *to measure execution habit*

Appendix Table 1: Comparison of the demographics and clinical characteristics of the participants with the local population of adults with CF that did not participate, stratified according to adherence levels

	Low adherers, participants median [IQR] (N = 10)	Low adherers, non-participants [§] median [IQR] (N = 42)	High adherers, participants median [IQR] (N = 10)	High adherers, non-participants [§] median [IQR] (N = 18)
% Nebuliser adherence in previous year	28.0 [5.3, 46.0]	23.1 [10.7, 34.6]	94.9 [86.7, 108.5]	96.7 [89.8, 99.3]
Age in years	21.5 [19.3, 31.3]	25.0 [20.0, 32.0]	30.0 [18.0, 42.0]	26.0 [17.8, 28.0]
Female *	3 (.30)	20 (.48)	5 (.50)	4 (.22)
Best % predicted FEV1 for the previous year	88.0 [80.0, 96.3]	80.5 [61.0, 96.0]	77.0 [56.0, 86.0]	85.0 [73.3, 89.5]
IV days for the previous year	13 [0, 50]	22 [9, 35]	7 [0, 16]	2 [0, 22]

[§] For non-participants, data from 01 January 2015 to 31December 2015 were used.

* For gender, the proportion of female participants in each group was displayed.

Appendix Figure 1: Scatter-dot plots displaying the differences in nebuliser adherence*, habit and opportunity scores[§] for low vs high adherers
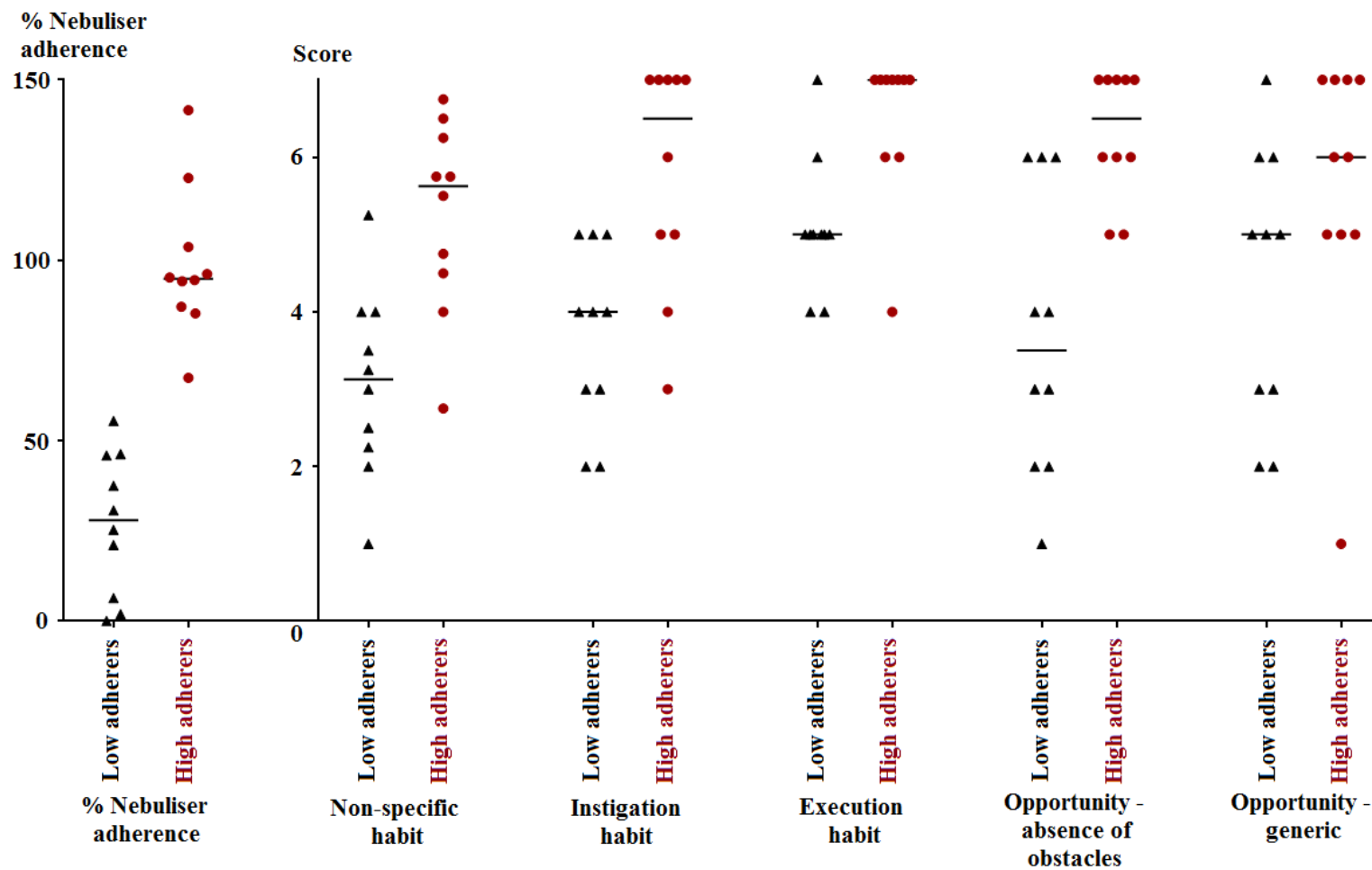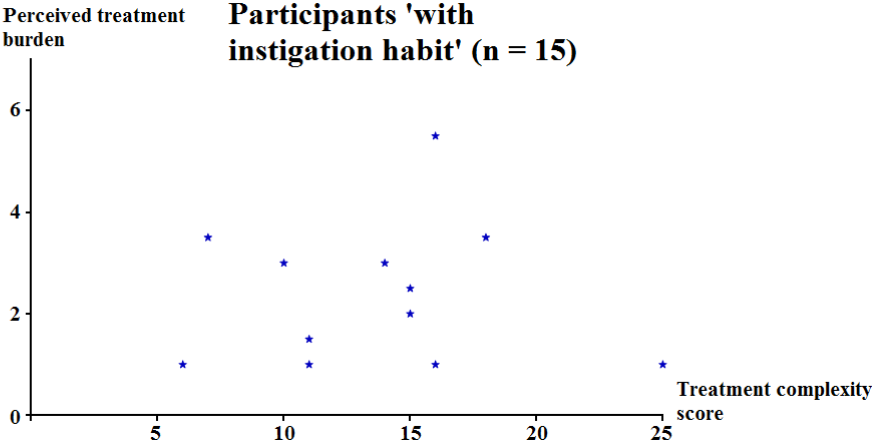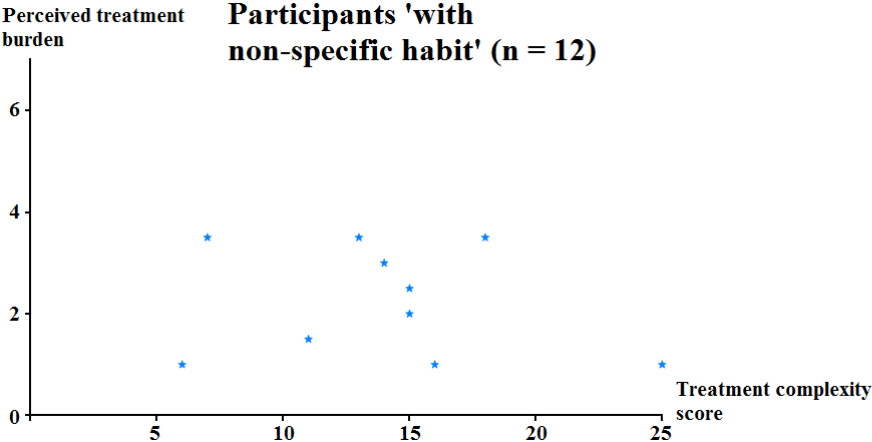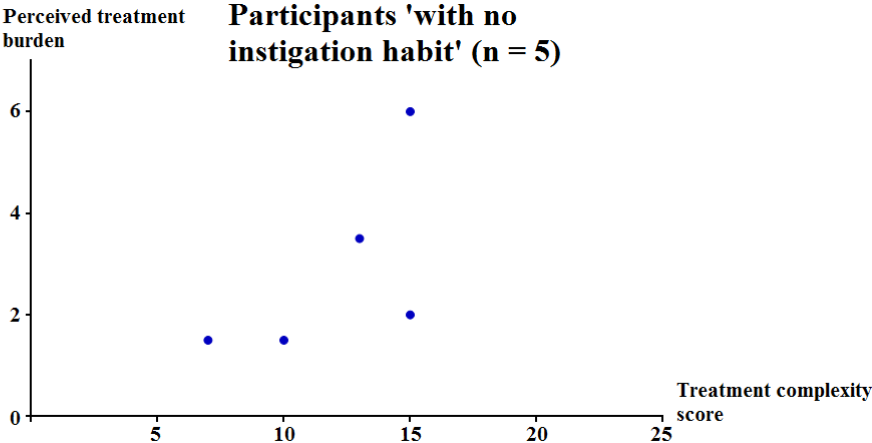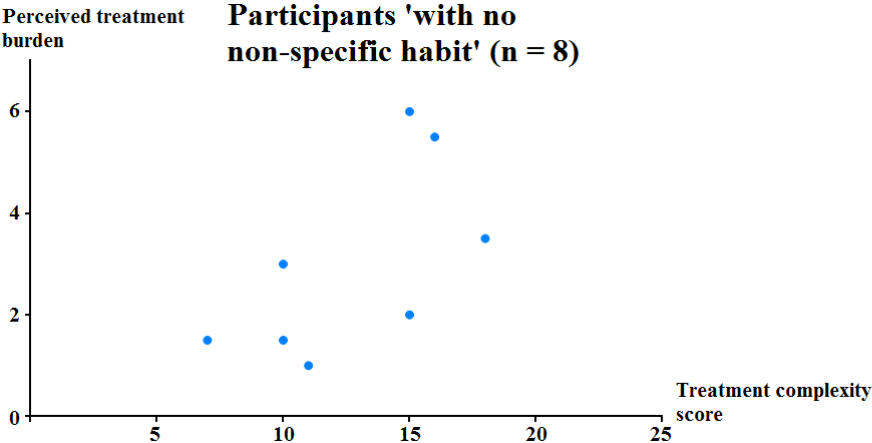

* data was from I-neb® device.
% nebuliser adherence calculated as a percentage between total amount of medication used against the agreed dose between clinicians and adults with CF
[§] Habit scores were measured using Self-Report Behavioural Automaticity Index (SRBAI). Opportunity scores were measured using COM-B Self-Evaluation Questionnaire (see manuscript for full details).

* Perceived treatment burden scores were measured using CF Questionnaire-Revised. The Treatment Complexity Score was used to measure objective treatment burden. Habit scores were measured using Self-Report Behavioural Automaticity Index (SRBAI). Participants were dichotomised into those that 'had habit' (high level of automaticity, habit score $\geq$4, i.e. at or above the scale midpoint) or 'had no habit' (habit score <4). See manuscript for full details.