

COMPANION - a randomised controlled study to evaluate the impact of Almee, a digital therapy, on anxiety and quality of life in patients with pulmonary fibrosis



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Introduction

Pulmonary fibrosis (PF) a manifestation of interstitial lung disease (ILD), leads to impaired quality of life (QoL) and significant anxiety. Almee is a personalised digital cognitive behavioural therapy (CBT), easily accessed via a smartphone or tablet, developed to help patients manage the psychological burden of living with PF.

Aims and Objectives

The COMPANION study was designed to evaluate the efficacy of Almee in reducing anxiety symptoms and improving QoL in PF patients.

Overview of the study design:

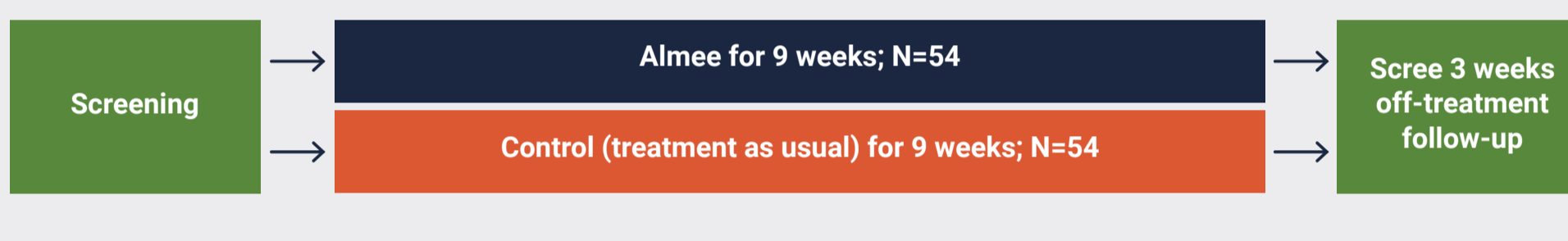
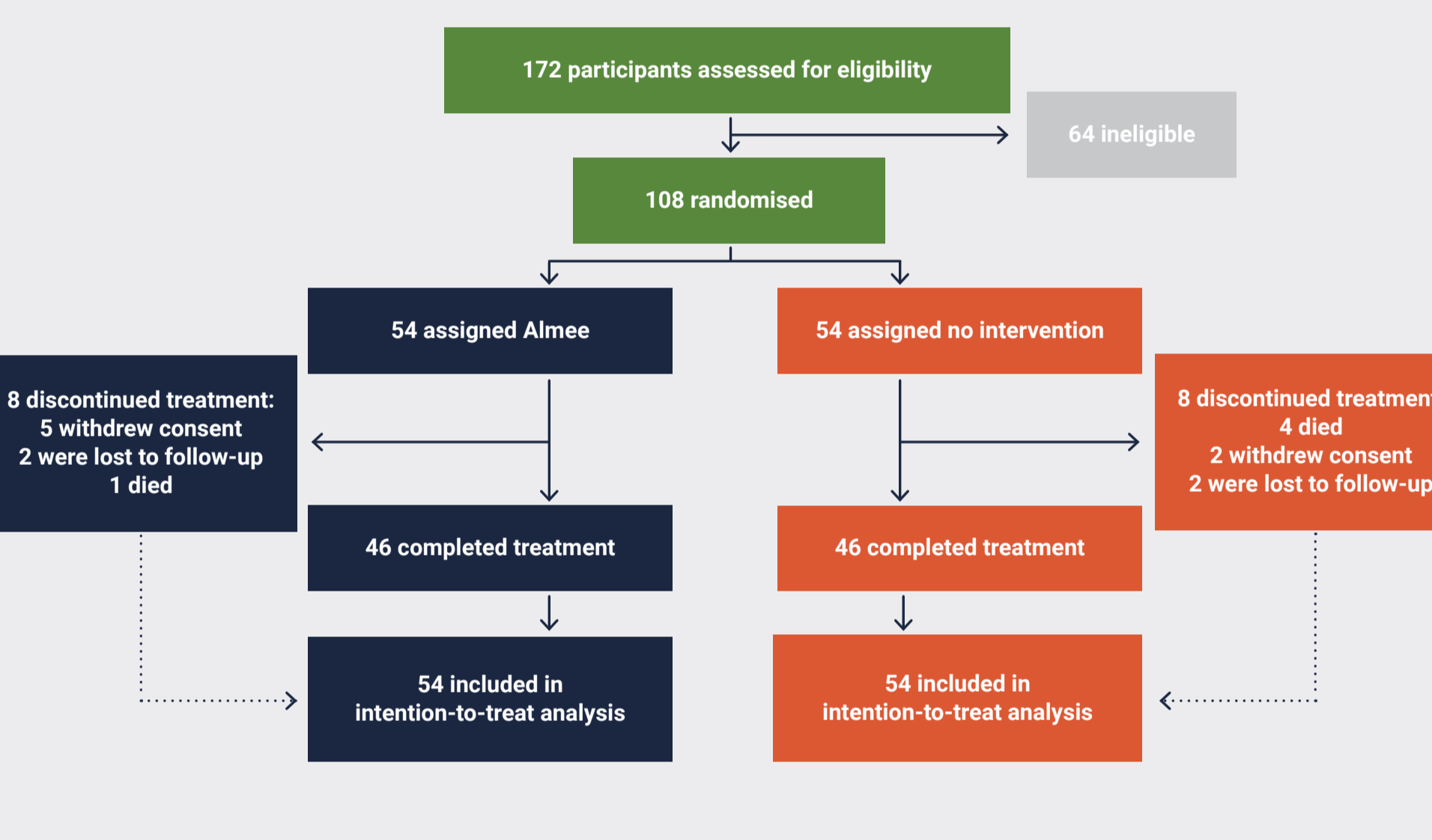


Figure 1. Study Flow



Baseline characteristics of the two study arms:

	Almee(n=54)	Control(n=54)
Age (years)	66.2 (10.2)	68.9 (8.1)
Female	38 (70.4%)	33 (61.1%)
Race		
White	49 (90.7%)	50 (92.6%)
Black	3 (5.6%)	3 (5.6%)
Other	2 (3.7%)	1 (1.9%)
Type of ILD (self-reported)		
Idiopathic	30 (55.6%)	35 (64.8%)
Autoimmune	14 (25.9%)	9 (16.7%)
Other†	7 (13.0%)	2 (3.7%)
Unknown	3 (5.6%)	8 (14.8%)
Use of nintedanib	17 (31.5%)	20 (37.0%)
Use of pirfenidone	12 (22.2%)	11 (20.4%)
Use of oxygen therapy	18 (33.3%)	19 (35.2%)
Severity of anxiety (based on GAD-7 score)		
Mild (5-9)	32 (59.3%)	32 (59.3%)
Moderate (10-14)	17 (31.5%)	17 (31.5%)
Severe (≥15)	5 (9.3%)	5 (9.3%)

Means and SD or number and percentage.

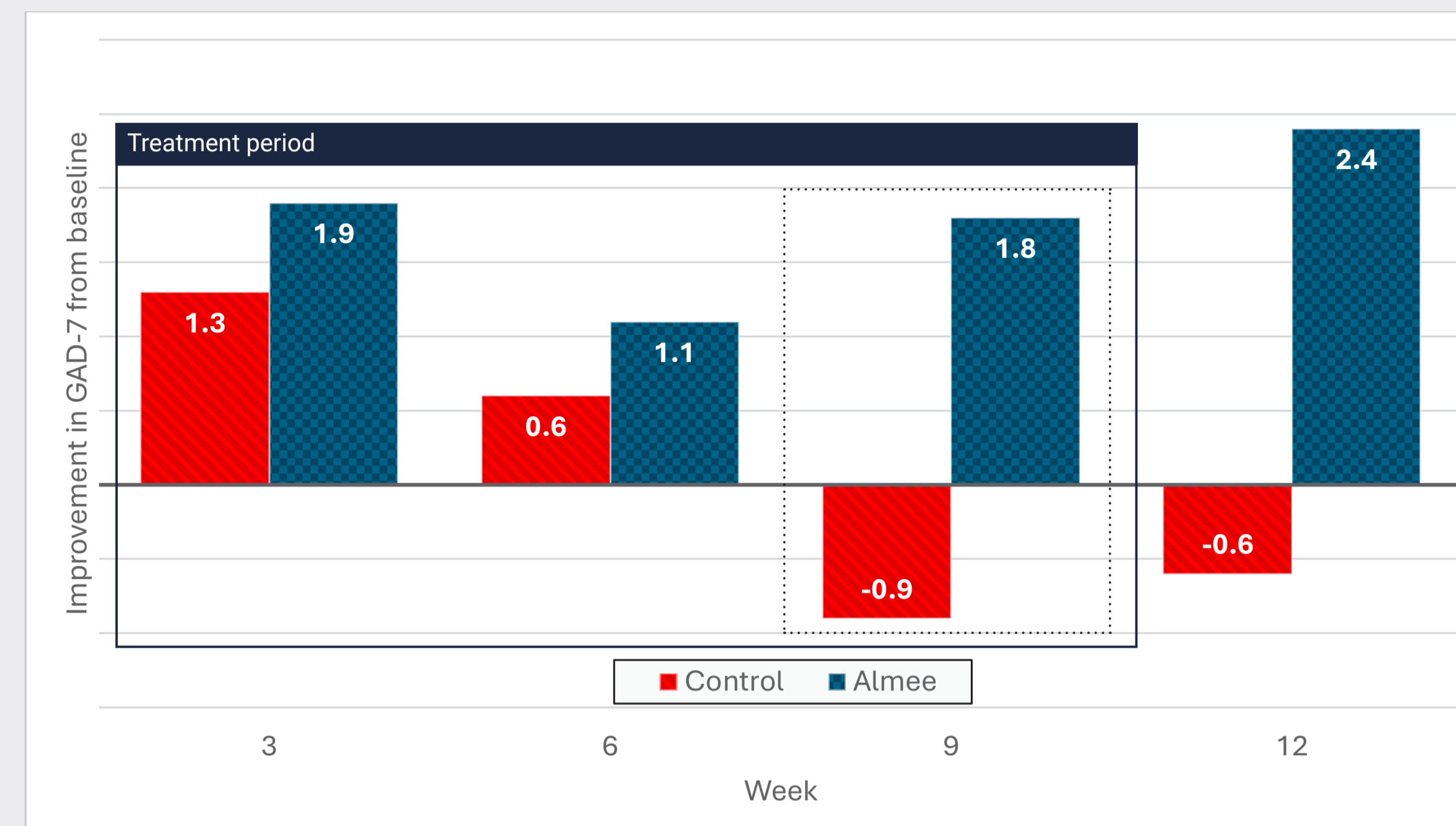
Methods

COMPANION was a 9-week, randomised, waitlist-controlled, open label, decentralised clinical study in individuals with PF confirmed on centrally reviewed computed tomography scan reports. The primary endpoint was change in anxiety symptom severity assessed by General Anxiety Disorder 7 (GAD-7) score. Secondary endpoints included health-related QoL assessed by King's Brief Interstitial Lung Disease (KBILD).

Results

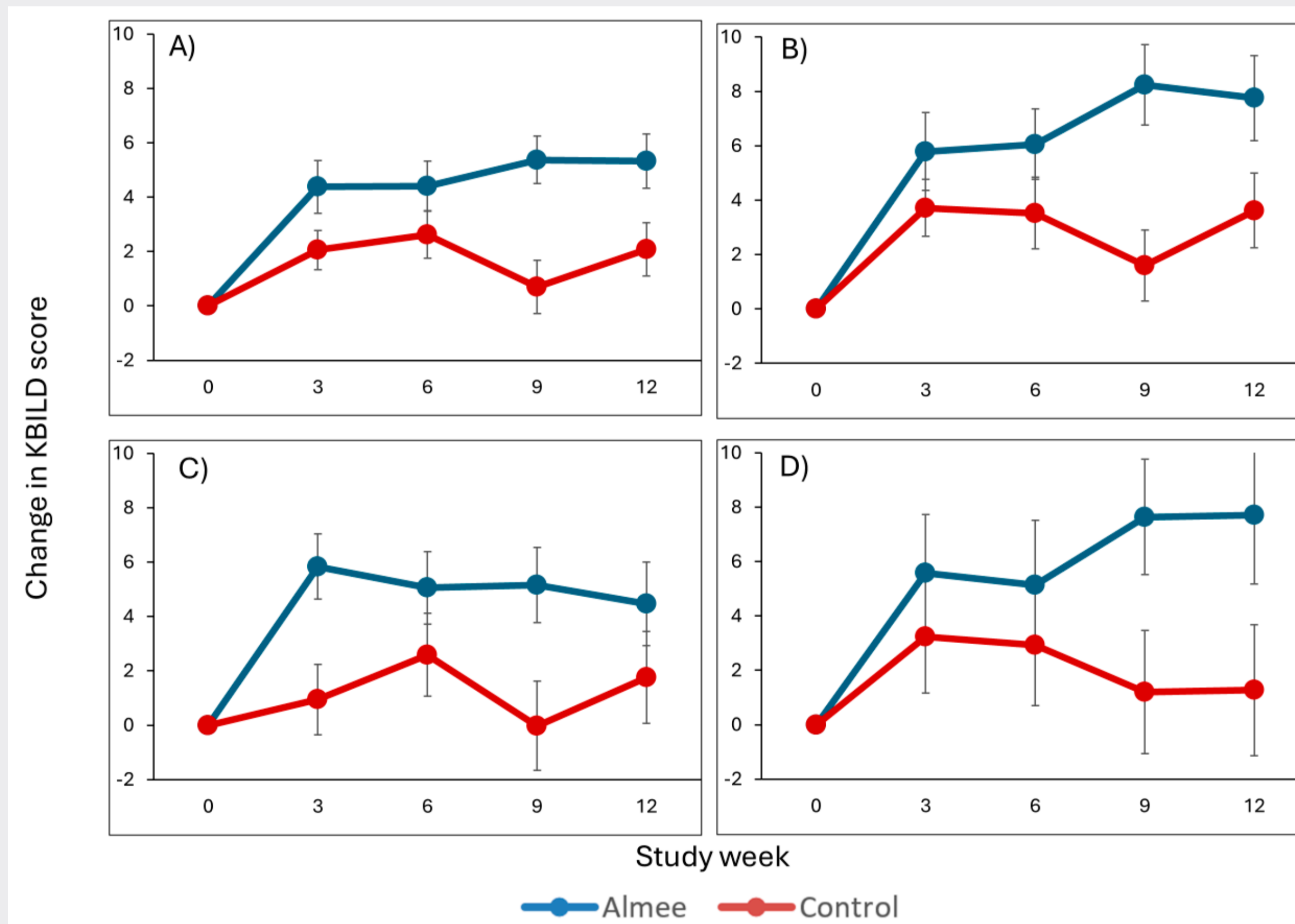
108 participants were randomised, 54 in each arm. COMPANION met the primary endpoint of anxiety reduction on GAD-7 (-2.7 points, p=0.0006 vs control). Health-related QoL improved as shown by total KBILD score (4.4 points vs control, p = 0.0019) and by all subdomains (psychological 6.5 points, p=0.0015, breathless/activity 4.6 points, p=0.0406, and chest symptoms 5.8 points, p=0.0586). Almee was well tolerated.

Figure 2. GAD-7



Improvement in GAD-7 total scores from baseline (n=108) by visit. ANCOVA model based on imputed data. GAD-7 scores can range from 0 to 21 and improvement represents a reduction of the total score.

Figure 3. KBILD



Change in K-BILD scores from baseline. Imputed data. N=108.

Lines represent mean values and error bars standard error of the mean (SEM). Blue lines: Almee group, red lines: control group. A) KBILD total score. B) KBILD psychological domain score. C) KBILD breathlessness/activity domain score. D) KBILD chest symptom domain score.

Figure 4. GAD-7 Subgroup Analysis: Anxiolytics and/or Antidepressants

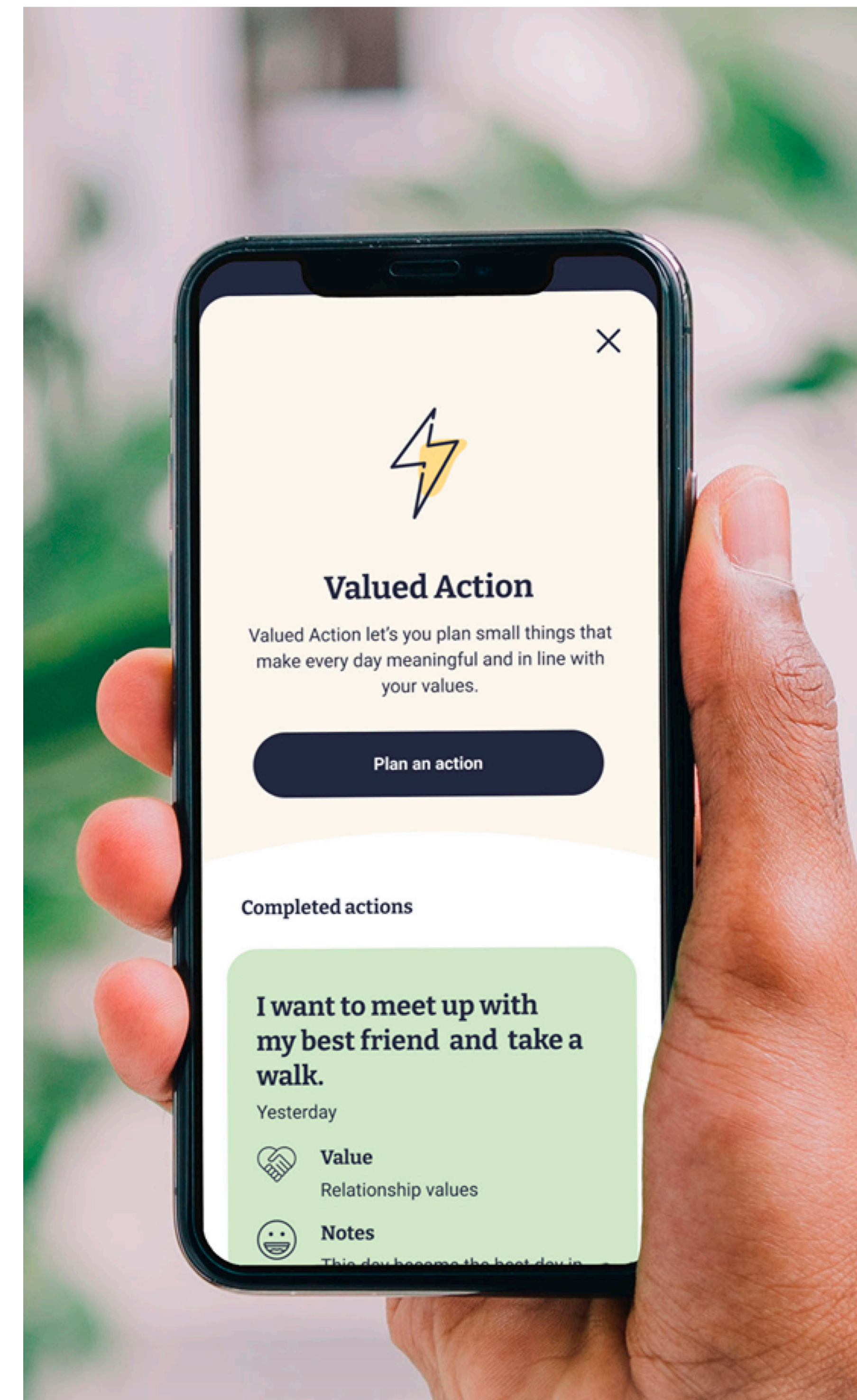
	Almee		Control		Difference	p-value
	n	Change from baseline	n	Change from baseline		
with antidepressants	19	-2.92	28	-0.2	-2.72	0.034
no antidepressants	35	-5.64	26	-3.13	-2.5	0.012
with anxiolytics	10	-5.84	12	-1.26	-4.58	0.038
no anxiolytics	44	-4.19	42	-1.53	-2.66	0.001
with antidepressants and/or anxiolytics	24	-3.53	33	-0.99	-2.53	0.029
no antidepressants and/or anxiolytics	30	-5.02	21	-2.44	-2.58	0.019

Post hoc subgroup analysis based on use of concomitant antidepressant and/or other anxiolytic pharmacotherapy in COMPANION.

Change from baseline in GAD-7 score to week 9, imputed data.

Summary of Adverse Events

No serious adverse events related to Almee were reported. No participant reported psychological distress leading to thoughts of self-harm or suicidal behavior. In total, 14 participants experienced serious adverse events (SAEs), 5 (9.4%) in the Almee group and 9 (16.7%) in the control group with five deaths in total (one in the Almee group and four in the control group). All deaths were related to severe pulmonary disease. The only SAE assessed as possibly related to study participation was a hospitalization for suspected anxiety attack, associated with shortness of breath and chest pain, in the control group.



Conclusions

Almee, the first digital therapy specifically developed for patients with PF, significantly decreased anxiety symptom severity and improved all aspects of health-related QoL, supporting a new comprehensive treatment approach for patients living with this devastating disease.



Many thanks to the patients who participated, and to the PF patient groups in the United States.

Conflicts of Interest: J.J.S. has received grants or contracts from BI and NIH; expert-testimony payments from Childs McCune and Retherford, Mullen and Mor; and support for attending meetings or travel from the Chilean Respiratory Society, R.W.H., M.R.H., and T.B. have received consulting fees from Vicore Pharma. R.W.H. has received consulting fees from Boehringer Ingelheim and UpToDate, payments or honoraria from the ILD Collaborative and The Myositis Association, and support for attending meetings or travel from the Pulmonary Fibrosis Foundation. J.G., J.G.S., and J.G. are employees of Vicore Pharma and C.G. has stock options in the company. J.G.S. has received consulting fees from Digital Evidence Ecosystem & Protocols and support for hotel during the Clinical Trials Innovation conference in Barcelona.