

APPENDIX 1.

Intervention fidelity

Agreement between raters was 71.7% (range 44.4%-100%). Facilitators tended to report enacting more motivational interviewing techniques than observed by the observer. The most common of these were:

- Facilitator circulates regularly during activities to enable them to see how participants are progressing;
- Facilitator asks questions at the end of each activity to bring participants to self-reflect (enabling self-reflection);
- Facilitator uses other group members to solve participant problems before offering own advice.

APPENDIX 2.

Statistical Methods

Analysis was carried out on an intention-to-treat basis. The main analysis compared primary and secondary outcome measures between treatment groups at 6-months post baseline to assess the effect of the group-based SMP. Data were also analysed at 9-months to assess the longer-term effect. Data were checked for normality of distribution and multivariate outliers.

Missing data were imputed in Stata (version 15; StataCorp, College Station, TX, USA) using multiple imputed chained equations.

Pearson correlations (univariable) were carried out to determine which variables appeared to predict outcome variables. In each case, the same 58 candidate predictors were investigated (primary and secondary outcome measures at baseline, 6- and 9-months, age, gender, marital status and FEV₁/FVC ratio). Variables that were highly correlated with the outcome of interest (above 0.7) were not included in the imputation model in order to reduce to likelihood of perfect prediction. Linear regressions were carried out until an optimal analytic model was reached using backwards selection. In all cases, at least 40% of the variance was explained by the imputation model. In total, 22 variables were imputed (primary and secondary outcome measures (including subscales) at 6- and 9-months).

30 imputed datasets were created using primary and secondary outcome variables at baseline, 6-months and 9-months as predictors (CAT, CRQ, HADS, PAM, EQ-5D and BCKQ).

Analyses on imputed datasets were carried out using the `mi combine` command in Stata, which analyses each dataset separately and combines the results. Linear regressions were

performed on 6-month and 9-month data for primary and secondary outcomes, and an additional regression was performed to correct for baseline differences.

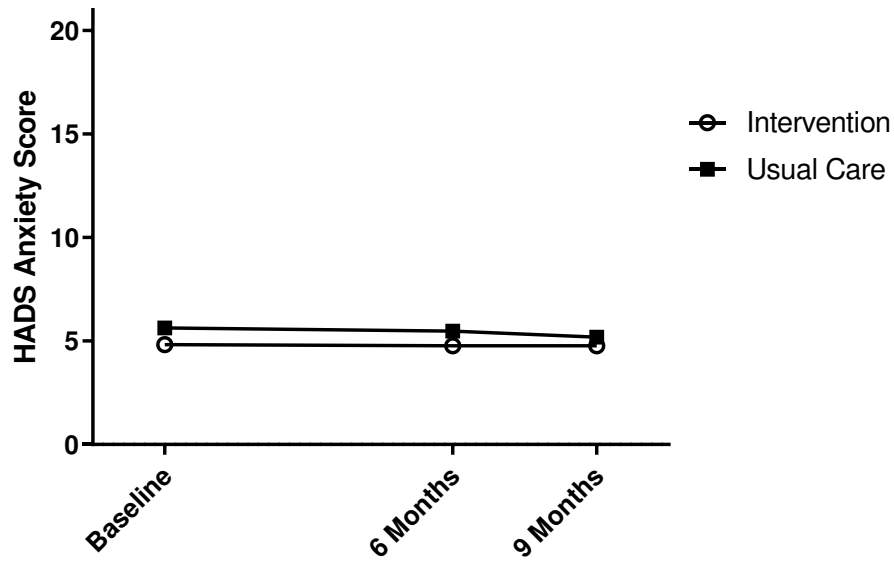
Linear regressions and paired-sample t-tests were carried out 'per protocol' to validate the un-imputed results. Additionally, per-protocol analyses were performed with the participants who completed the primary outcome measure at 6-months, and the findings were compared with the intention-to-treat analyses. All statistical significance tests were 2-tailed with $\alpha = 0.05$.

Secondary analyses

We conducted additional exploratory mixed model analyses, looking at the effects of group and time. 30 imputed datasets were created using primary and secondary outcome variables from the primary analysis as predictors. Models included treatment group, time, group \times time interaction and a random effect for participants.

Appendix 3.

Additional non-significant results:

Figure 1. Hospital Anxiety and Depression Scale – Anxiety Domain**Figure 2.** Hospital Anxiety and Depression Scale – Depression Domain