Purpose and Methods

In order to determine the extent to which the multiple imputation may have affected the results and conclusions of the study, we redid the analysis using only the complete observed data. The only data missing on participants was the weight data at 24 weeks (N=20) and at 36 weeks (N=41). Therefore, the only results to change from the main analysis are those in Figures 1 & 2, which show how participants in different groups responded to the different treatment arms. Importantly, this highlights the independence of the LCA group assignment and the participant outcomes: because the participants' weight after baseline is not part of the LCA, the LCA can be fit on all patients, even if not all participants have complete weight data.

Results

At 24 weeks, there were 20 participants with missing weight data: 3 in the "Distant teams", 14 in the "Kin teams" and 3 in the "Married teams". The results for participants' weight at 24 weeks can be seen in Figure S1. The significance levels for the "Kin teams" and "Married teams" are identical to those in the main analysis. For the "Distant teams", in the non-imputed analysis, the gamification arm has significant effects, and the gamification with PCP sharing arm does not – the reverse of the main analysis.

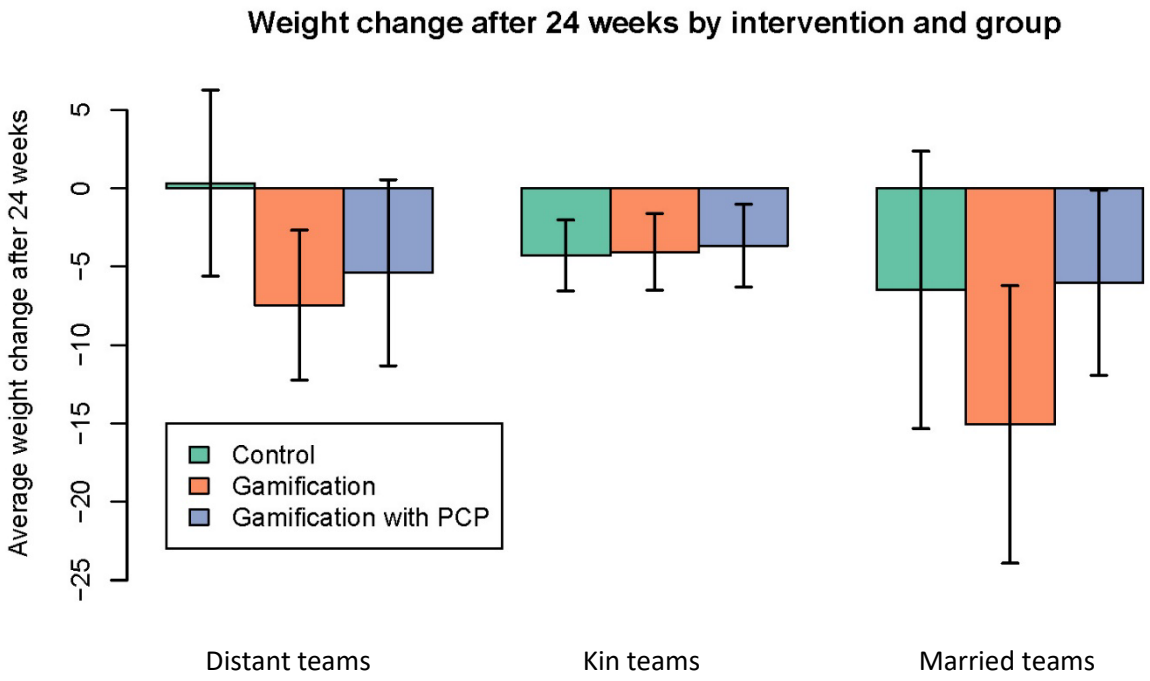

Figure S1. Weight change outcomes at 24 weeks, separated by intervention arm and latent group. Error bars represent 95% confidence intervals.

At 36 weeks, there were 41 participants with missing weight data: 12 in the "Distant teams", 18 in the "Kin teams" and 11 in the "Married teams".

The results for participants' weight at 36 weeks can be seen in Figure S2. The significance levels for the "Kin teams" and "Married teams" are identical to those in the main analysis. For the "Distant teams", in the non-imputed analysis, the gamification arm did not significant effects, whereas it did in the main analysis.

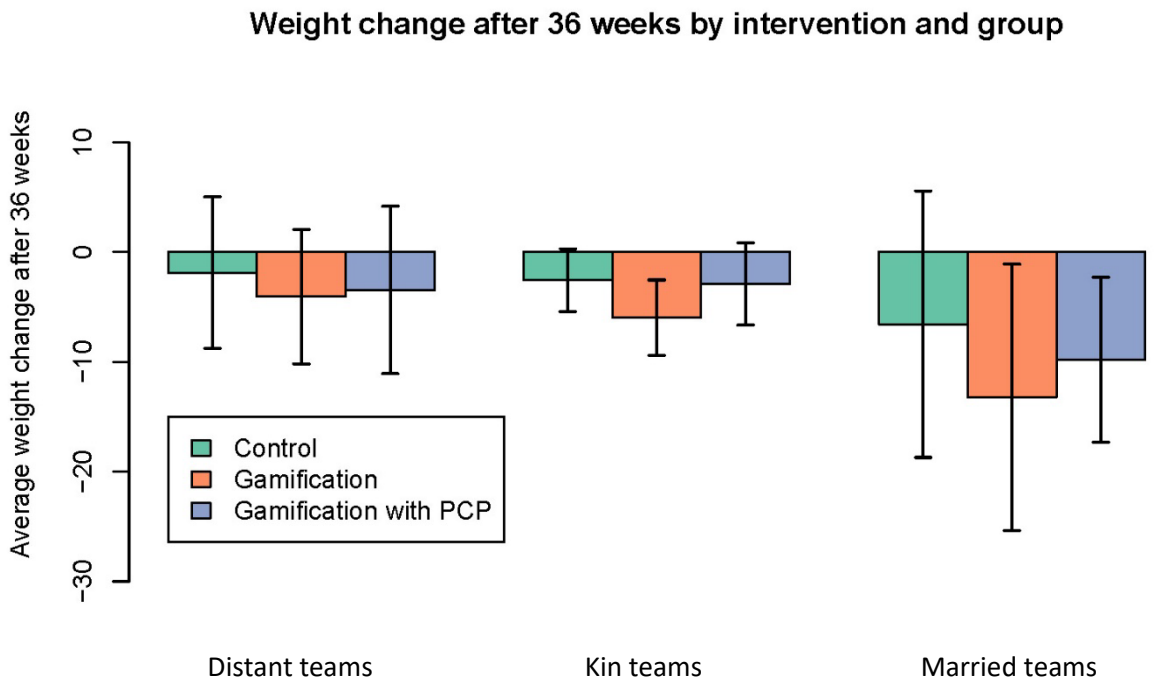

Figure S2. Weight change outcomes at 36 weeks, separated by intervention arm and latent group. Error bars represent 95% confidence intervals.

Discussion

For the "Kin teams" and "Married teams", we see qualitatively similar results for the three study arms at both 24 and 36 weeks. For "Distant teams", we see the significance of the gamification and gamification with PCP sharing arms reversed at 24 weeks, and that the gamification arm did not have significant effects at 36 weeks. The former two effects indicate that the results in the "Kin teams" and "Married teams" were very robust to our imputation. The lack of robustness in the "Distant teams" indicates that those who had missing data had relatively extreme imputed values trending towards weight loss, impacting the inferences.

In sum, these results do not impact the results for the "Kin teams" and "Married teams", but indicate that the gamification arm may not have been successful over time in the "Distant teams". This further aligns with the underlying theory, as those who were distant would not have likely responded strongly to gamification.