

Supplementary Data

Supplementary Table S1. Item statistics for the four-factor solution to the HFS-II. Factors included, Cronbach's alpha if item deleted and item-total correlation (item dropped) are presented for each HFS-II question item. Note that Ran High factor, question item HFS-2 had less favourable item statistics (item-total correlation 0.46), however, its retention in the Ran High Factor is justified by the high loading onto the factor (0.6) and content validity (statement directly about running glucose high).

HFS-II factor	HFS-II item	Cronbach's alpha if item deleted	Item-total correlation (item dropped)
Ran high	2	0.85	0.46
Ran high	13	0.58	0.70
Ran high	14	0.62	0.67
Sought safety	5	0.88	0.72
Sought safety	11	0.87	0.79
Sought safety	15	0.88	0.68
Sought safety	20	0.87	0.78
Sought safety	23	0.86	0.82
Sought safety	30	0.90	0.56
Restricted activity	6	0.82	0.71
Restricted activity	7	0.88	0.51
Restricted activity	8	0.80	0.81
Restricted activity	9	0.80	0.77
Restricted activity	12	0.84	0.64
Worry	17	0.94	0.51
Worry	18	0.93	0.73
Worry	19	0.93	0.79
Worry	21	0.93	0.77
Worry	22	0.93	0.78

Worry	24	0.94	0.46
Worry	25	0.93	0.78
Worry	26	0.93	0.76
Worry	27	0.93	0.79
Worry	28	0.93	0.70
Worry	29	0.93	0.72
Worry	31	0.93	0.69
Worry	33	0.93	0.71

Supplementary Table S2 Statistical analysis for associations between Gold score and HFS-II factors. Groupwise comparisons for each factor by Kruskal-Wallis test; pairwise comparisons by Dunn's post hoc test with adjustment for multiple comparisons. Statistical analysis for associations between recurrent severe hypoglycemia groups and HFS-II factors by Wilcoxon Rank Sum test.

	Worry	Sought Safety	Restricted Activity	Ran High
Gold score				
Kruskal-Wallis	<0.001	<0.001	<0.001	0.109
1 - 2	0.355	0.690	0.774	0.486
1 - 3	0.323	0.579	0.293	0.742
2 - 3	0.089	0.434	0.373	0.209
1 - 4	0.399	0.113	0.012	0.924
2 - 4	0.093	0.033	0.014	0.496
3 - 4	0.714	0.485	0.615	0.562
1 - 5	0.332	0.004	0.003	0.955
2 - 5	0.041	<0.001	0.004	0.439
3 - 5	0.720	0.163	0.618	0.454
4 - 5	0.987	0.412	0.967	0.977
1 - 6	0.004	<0.001	0.004	0.554
2 - 6	<0.001	<0.001	0.002	0.124
3 - 6	0.324	0.010	0.386	0.559
4 - 6	0.096	0.019	0.750	0.607
5 - 6	0.042	0.076	0.671	0.524
1 - 7	0.022	0.010	0.013	0.986
2 - 7	0.001	0.002	0.015	0.574
3 - 7	0.313	0.152	0.509	0.535
4 - 7	0.124	0.368	0.814	0.980
5 - 7	0.091	0.708	0.794	0.950
6 - 7	0.934	0.305	0.921	0.746
Recurrent severe hypoglycemia				
	<0.001	<0.001	<0.001	0.440

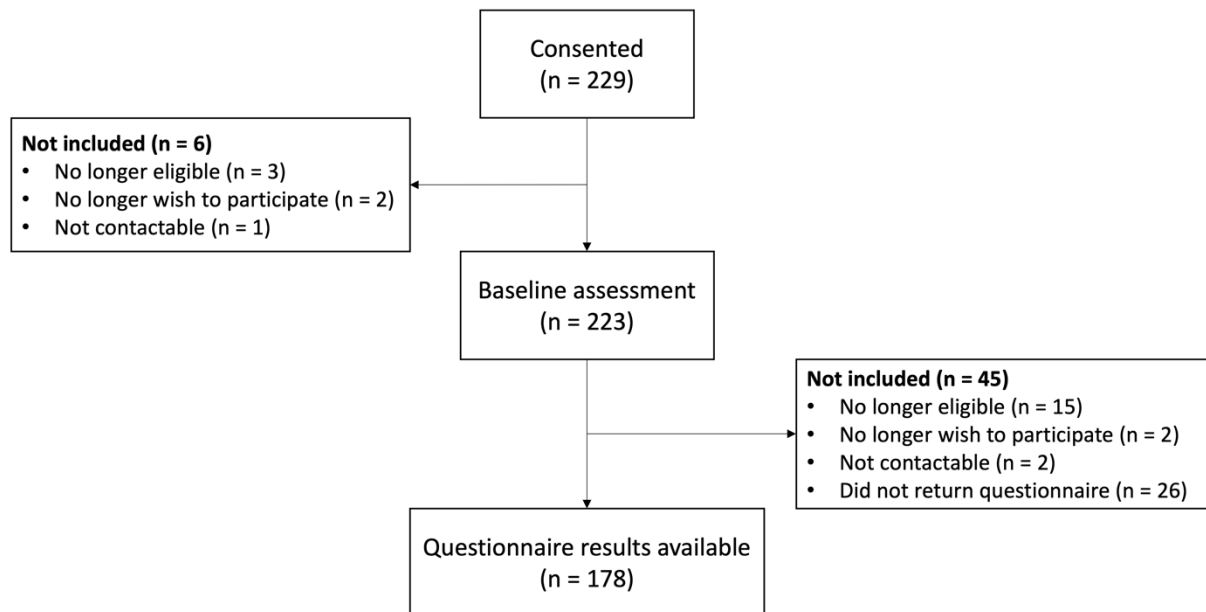
Supplementary Table S3. Statistical analysis comparing rate of severe hypoglycemia (column 2) and HbA1c (column 3) between the four clusters as shown in Fig. 2 of the main paper. Pairwise comparisons by Dunn's post hoc test with adjustment for multiple comparisons.

Cluster comparison	Severe hypoglycemia count (p value)	HbA1c (p value)
1 – 2	0.300	0.480
1 – 3	<0.001	0.006
2 – 3	<0.001	0.008
1 – 4	<0.001	0.035
2 – 4	<0.001	0.025
3 – 4	0.770	0.029
Kruskal-Wallis	<0.001	0.001

Supplementary Table S4. Summary of the cluster analysis, with interpretation of the key findings that define each cluster. * median values for questionnaire scores.

Cluster number	1	2	3	4
Cluster description	Response to lower severe hypoglycemia experience	High hypoglycemia fear and distress; lower severe hypoglycemia risk	High hyperglycemia avoidance; low hypoglycemia fear; high barriers	High hypoglycemia fear; lower barriers
A2A Avoid High*	1	1.6	2.3	1
A2A Minimise*	0.62	0.75	1	0.25
A2A Normalise*	0.25	0.75	0.75	0
Gold*	2	2	5	5
HAS*	1.54	2.17	1.96	1.83
HFS Ran High*	1.1	2	0.38	2
HFS Restricted*	0	0.46	0	0.85
HFS Sought Safety*	0.18	1.3	0.37	1.6
HFS Worry*	0.46	1.7	1.1	1.7
PAID*	12	40	14	22
HbA1c mean (SD)	7.7 (0.9)	8.0 (1.1)	6.8 (1.1)	7.2 (1.1)
SH mean (SD)	1.9 (7.5)	1.3 (2.4)	14.3 (25.0)	11.4 (21.4)

Supplementary Figure S1. Study recruitment flowchart, from consented participants up to questionnaire results available for analysis.



Supplementary Figure S2. Forest plot presenting the logistic regression coefficients for the HFS-II factors and diabetes duration (top), against impaired awareness of hypoglycemia (open circles) and recurrent severe hypoglycemia (closed

