

Appendix 5. Analysis of patient characteristics associated with response to the PAM questionnaire.

Our cohort and study period was identified as outlined in appendix 1. and consisted of patients with long-term conditions in 34 general practices in Islington Clinical Commissioning group.

A patient’s response to PAM was identified through their primary care record, we considered a patient a ‘responder’ if they had at least one valid PAM score recorded during the study period. Patient demographic characteristics were measured at the patient level and included age in years, gender and socioeconomic deprivation score (IMD 2015) and multi-morbidity.

Characteristics of interest of the responding, and non-responding patients are described in Table 1.

	Non-respondents (N=28,287)	Respondents (N=9,348)
Patient characteristics		
Age (at time of questionnaire)	55.36 (16.73)	66.92 (13.52)
Gender (% female)	53.5%	52.2%
Index of Multiple Deprivation (national quintile groups)		
1 (most deprived)	55.24	52.9
2	40.02	41.3
3, 4 or 5	4.73	5.8
Number of long term conditions	1.90 (1.22)	2.26 (1.36)
Long term condition	Percentage with condition	
Acute mental health conditions	3.43	3.72
Asthma	15.78	14.89
Cancer (from 2003 onward)	8.99	13.93
Chronic depression	46.84	25.73
Chronic heart disease	7.92	12.99
Chronic kidney disease	7.74	13.14
Chronic obstructive pulmonary disease	7.56	12.56
Chronic liver disease	5.60	6.78
Dementia	2.91	3.06
Diabetes	22.48	28.61
Heart failure	3.33	5.18
Hypertension	44.60	65.79
Stroke (or transient ischaemic attack)	5.21	7.40
Healthcare utilisation per person per year		
Number of GP contacts	6.67 (5.92)	8.75 (7.73)

Number of inpatient admissions	0.78 (4.76)	0.84 (3.93)
Number of emergency department visits	0.54 (1.10)	0.52 (1.37)
Number of outpatient appointments	4.25 (6.53)	5.77 (8.71)

Table 1 – Descriptive statistics for patients, by whether they have a recorded PAM response or not

Statistical analysis of patient characteristics associated with response

We modelled the relationship between whether a patient responded to a PAM questionnaire and patient clinical and demographic characteristics identified using the linked data by using hierarchical, multivariable logistic regression models, including random intercepts at the general practice level. Coefficients were exponentiated and presented as odds ratios for response versus non-response, with statistical significance defined at the 95% confidence level. The odds ratios for response for a hierarchical logistic regression model including general practice level random intercepts and fixed effects for patient characteristics are presented in Table 2.

Any PAM score returned, either in wave 1 or 2 or both	(n=34,857 patients)		
Covariate	Odds Ratio	95% CI	P-value
One extra year of age	1.04	(1.04, 1.05)	<.0001
Gender (female)	0.90	(0.85, 0.94)	<.0001
One extra long-term condition	0.99	(0.97, 1.01)	0.51
IMD Level 2 vs 1	1.02	(0.96, 1.07)	0.54
IMD Level 3 vs 1	1.18	(1.04, 1.33)	0.01
IMD Level 4 vs 1	0.87	(0.58, 1.31)	0.51
IMD Level 5 vs 1	1.58	(0.91, 2.74)	0.11
Emergency department visits (one higher per year)	0.82	(0.79, 0.85)	<.0001
GP visits (one higher per year)	1.02	(1.02, 1.03)	<.0001
Inpatient admissions (one higher per year)	0.99	(0.98, 1.00)	<.005
Outpatient appointments (one higher per year)	1.02	(1.02, 1.03)	<.0001

Table 2. Odds ratios from the hierarchical multi-variable logistic regression model predicting response rates.