

**Figure S1.** Bar chart showing change in treatment burden by participant baseline characteristics.

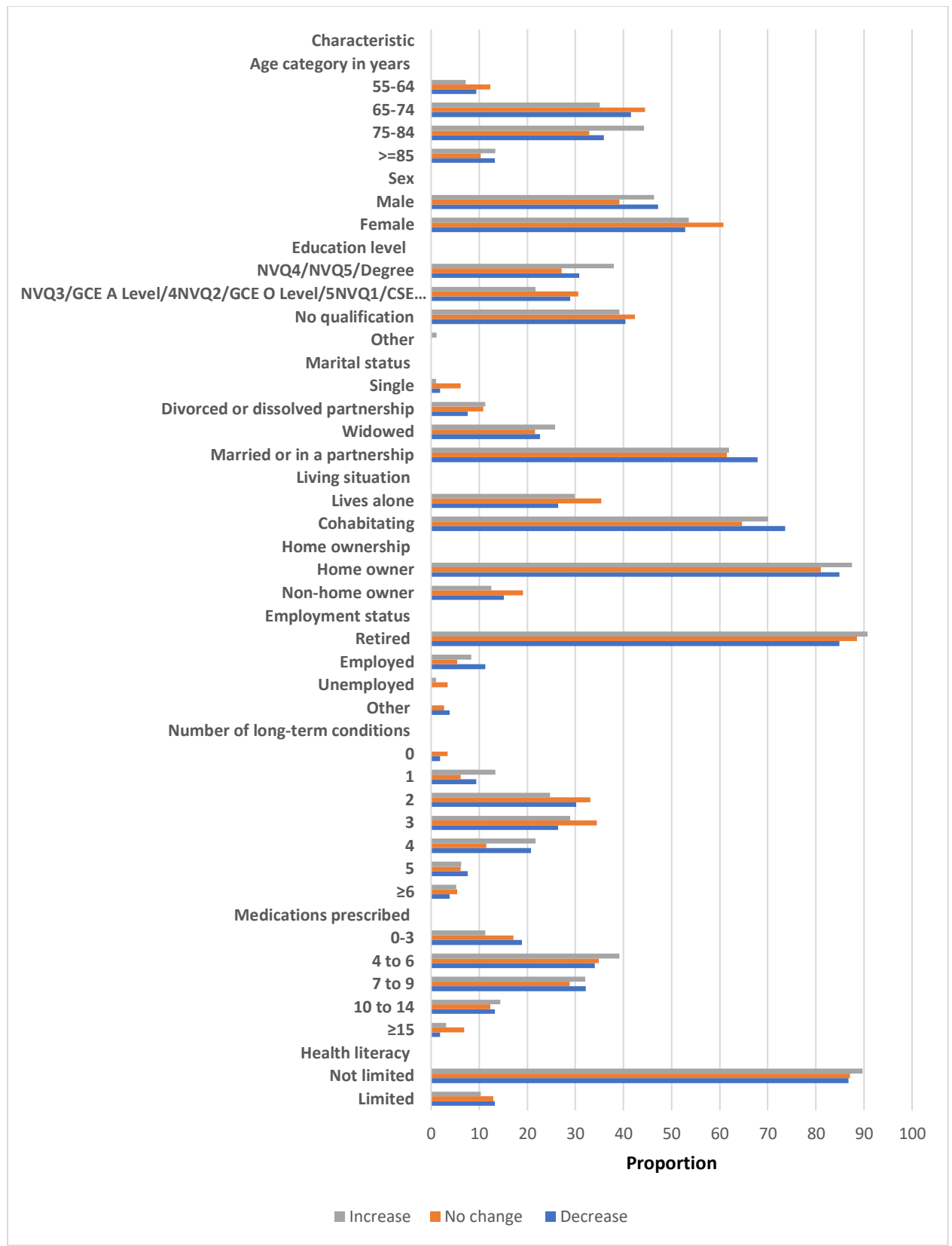


Figure shows proportion of patients with each characteristic in each treatment burden category change

**Table S1. Baseline characteristics of invited sample**

Characteristic	Invited sample (n=388)	
	Number *	% of N
<b>Age in years, mean(SD)</b>	74.6 (8.2)	
<b>Age category in years</b>		
	55 to 59	19 4.9
	60 to 64	24 6.1
	65 to 69	59 15.1
	70 to 74	96 24.6
	75 to 79	85 21.7
	80 to 84	57 14.6
	85 to 89	39 10.0
	90 to 94	11 2.8
	>=95	1 0.3
<b>Sex</b>		
	Male	176 44.8
	Female	217 55.2
<b>Ethnicity</b>		
	White	391 99.7
	Other than White	1 0.3
<b>Marital status</b>		
	Married or in a partnership	248 63.3
	Widowed	86 21.9
	Divorced or dissolved partnership	43 11.0
	Single	15 3.8
<b>Living situation</b>		
	Cohabiting	267 68.1
	Lives alone	125 31.9
<b>Home ownership</b>		
	Homeowner	320 81.8
	Non-homeowner	71 18.2
<b>Employment status</b>		
	Retired	348 88.6
	Employed	30 7.6
	Unemployed	7 1.8
	Other	8 2.0
<b>Smoking status</b>		
	Current smoker	19 4.8
	Ex-smoker	214 54.5
	Never smoked	160 40.7
<b>Number of long-term conditions</b>		
	0	7 1.8

	1	39	9.9
	2	108	27.4
	3	114	28.9
	4	80	20.3
	5	28	7.1
	≥6	18	4.6
<b>Medications prescribed</b>			
	0 to 3	58	14.8
	4 to 6	139	35.6
	7 to 9	115	29.4
	10 to 14	55	14.1
	≥15	24	6.1
<b>Treatment burden category</b>			
	High	67	17.0
	Medium	115	29.2
	Low	110	27.9
	None	102	25.9
<b>Health literacy</b>			
	Never	265	67.4
	Rarely	66	16.8
	Sometimes	34	8.7
	Often	19	4.8
	Always	9	2.3
<b>Financial difficulty with healthcare</b>			
	Not difficult or n/a	303	77.7
	A little	57	14.6
	Quite	18	4.6
	Very	11	2.8
	Extreme	1	0.3
<b>Travel time to hospital</b>			
	≤ 1 hour	334	92.5
	>1 hour	27	7.5
<b>Travel time to GP</b>			
	≤10 minutes	240	61.7
	>10 minutes	149	38.3
<b>Number of outpatient appointments in last 6 months</b>			
	0-2	290	81.2
	≥3	67	18.8

\*Please note - the total numbers in this table do not equate to 388 (the number of the final invited sample) as there were six people from one practice who were deemed initially eligible and then became ineligible by the point of survey mail out. The practice were subsequently unable to clearly distinguish these individuals from the rest of the invited sample and their data has therefore not been removed from this descriptive table. This represents an administrative issue only, regarding data availability on the invited sample. Only patients who were eligible to receive the survey were included in the actual mail-out.

**Table S2. Baseline characteristics of those who experienced a change in treatment burden category and those who did not**

Characteristic	No change in treatment burden category (n=149)		Increase in treatment burden category (n=98)		Decrease in treatment burden category (n=53)		p-value
	Number	% of N	Number	% of N	Number	% of N	
<b>Age in years, mean (SD)</b>	73.1 (8.0)		76.1 (7.6)		74.8 (8.4)		0.755
<b>Age category in years</b>							
55 to 64	20	13.5	7	7.1	5	9.4	
65 to 74	65	43.9	35	35.7	22	41.5	
75 to 84	48	32.4	43	43.9	19	35.9	
≥85	15	10.1	13	13.3	7	13.2	0.418
<b>Sex</b>							
Male	58	38.90	46	46.9	25	47.2	
Female	91	61.1	52	53.1	28	52.8	0.342
<b>Education</b>							
NVQ4/NVQ5/Degree	44	30.1	21	22.6	15	28.9	
NVQ3/GCE A Level/4NVQ2/GCE O Level/5NVQ1/CSE other grade	41	28.1	35	37.6	16	30.8	
No qualification	61	41.8	36	38.7	21	40.4	
Other	0	0.0	1	1.1	0	0.0	0.526
<b>Ethnicity</b>							
White	149	100.0	97	99.0	52	98.1	
Other than White	0	0.0	0	0.0	1	1.9	0.097
<b>Marital status</b>							
Married or in a partnership	93	62.0	61	62.2	36	67.9	
Widowed	32	21.3	25	25.5	12	22.6	
Divorced or dissolved partnership	16	10.7	11	11.2	4	7.6	
Single	9	6.0	1	1.0	1	1.9	0.452
<b>Living situation</b>							
Cohabiting	97	65.1	69	70.4	39	73.6	
Lives alone	52	34.9	29	29.6	14	26.4	0.221
<b>Home ownership</b>							
Homeowner	121	81.2	85	87.6	45	84.9	
Non-homeowner	28	18.8	12	12.4	8	15.1	0.398
<b>Employment status</b>							
Retired	131	87.9	89	90.8	45	84.9	
Employed	9	6.0	8	8.2	6	11.3	
Unemployed	5	3.4	1	1.0	2	3.8	0.300
Other	4	2.7					
<b>Smoking status</b>							
Current smoker	8	5.4	4	4.1	1	1.9	
Ex-smoker	71	44.6	54	55.1	28	52.8	

Never smoked	70	47.0	40	40.8	24	45.3	0.703
<b>Number of long-term conditions</b>							
0	5	3.3			1	1.9	
1	9	6.0	13	13.3	5	9.4	
2	49	32.7	24	24.5	16	30.2	
3	51	34.0	29	29.6	14	26.4	
4	19	12.7	21	21.4	11	20.8	
5	9	6.0	6	6.1	4	7.6	
≥6	8	5.3	5	5.1	2	3.8	0.483
<b>Medications prescribed</b>							
0 to 3	25	16.8	11	11.2	10	18.9	
4 to 6	52	34.8	39	39.8	18	34.0	
7 to 9	42	28.2	31	31.6	17	32.1	
10 to 14	19	12.8	14	14.3	7	13.2	
≥15	10	6.7	3	3.1	1	1.9	0.705
<b>Treatment burden category</b>							
High	35	23.5	0	0.0	11	20.8	
Medium	39	26.1	22	22.5	23	43.4	
Low	32	21.4	35	35.7	19	35.9	
None	43	28.9	41	41.8	0	0.0	<0.001
<b>Health literacy</b>							
Never	101	68.2	70	71.4	39	73.6	
Rarely	28	18.9	18	18.4	7	13.2	
Sometimes	11	7.4	9	9.2	3	5.7	
Often	4	2.7	1	1.0	3	5.7	
Always	4	2.7	0	0.0	1	1.9	0.554
<b>Financial difficulty with healthcare</b>							
Not difficult or n/a	117	80.1	77	78.6	42	79.3	
A little	19	13.0	17	17.4	8	15.1	
Quite	4	2.7	3	3.1	3	5.7	
Very	6	4.1	1	1.0	0	0.0	0.457
<b>Travel time to hospital</b>							
≤ 1 hour	128	92.8	84	95.5	49	96.1	
>1 hour	10	7.2	4	4.6	2	3.9	0.573
<b>Travel time to GP</b>							
≤10 minutes	88	59.9	61	62.9	38	71.7	
>10 minutes	59	40.1	36	37.1	15	28.3	0.310
<b>Number of outpatient appointments in last 6 months</b>							
0 to 2	110	80.9	79	86.8	37	80.4	
≥3	26	19.1	12	13.2	9	19.6	0.458
<b>Number of GP appointments in last 6 months</b>							
0 to 2	91	67.9	60	69.0	26	56.5	
≥3	43	32.1	27	31.0	20	43.5	0.301

**Table S3. Associations with increase and decrease in treatment burden category**

Characteristic	Increase				Decrease			
	Univariable			p-value	Univariable			
	OR	95% CI			OR	95% CI	p-value	
<b>Age category in years</b>								
65 to 74	1.44	0.57	3.62	0.443	1.19	0.41	3.43	0.750
75 to 84	2.29	0.91	5.76	0.078	1.13	0.38	3.30	0.827
>=85	2.11	0.71	6.23	0.176	1.35	0.38	4.78	0.642
<b>Sex (vs male)</b>								
Female	0.78	0.48	1.27	0.321	0.81	0.45	1.47	0.485
<b>Marital status (vs married)</b>								
Single	0.21	0.03	1.43	0.143	0.43	0.05	3.45	0.425
Divorced or dissolved partnership	1.16	0.52	2.58	0.710	0.63	0.21	1.92	0.421
Widowed	1.20	0.67	2.14	0.533	0.90	0.44	1.85	0.776
<b>Living situation (vs cohabiting)</b>								
Lives alone	0.87	0.51	1.46	0.591	0.74	0.38	1.43	0.366
<b>Home ownership (vs homeowner)</b>								
Non-homeowner	0.65	0.32	1.32	0.232	0.92	0.40	2.09	0.834
<b>Employment status</b>								
Unemployed	0.40	0.04	4.02	0.437				
Retired	1.01	0.42	2.45	0.980	0.61	0.23	1.63	0.328
Other		(omitted)			1.50	0.22	10.36	0.681
<b>Smoking status (vs never smoked)</b>								
Ex-smoker	1.27	0.77	2.08	0.347	1.02	0.56	1.86	0.952
Current smoker	1.04	0.30	3.59	0.945	0.38	0.05	3.08	0.366

**Number of long-term conditions (vs 0 or 1 condition)**

2	0.57	0.25	1.32	0.187	0.99	0.35	2.78	0.979
3	0.69	0.30	1.56	0.371	0.79	0.28	2.25	0.656
4	1.08	0.44	2.63	0.871	1.23	0.41	3.75	0.706
5	0.71	0.22	2.34	0.574	1.20	0.29	4.93	0.800
≥6	0.77	0.21	2.77	0.688	0.69	0.12	3.91	0.677

**Medications prescribed (vs <7)**

≥7	1.03	0.63	1.67	0.907	0.94	0.52	1.70	0.831
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**Health literacy (vs not limited)**

Limited	0.77	0.36	1.67	0.506	1.14	0.47	2.77	0.766
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**Financial difficulty with healthcare (vs not difficult or n/a)**

Some difficulty	0.61	0.19	1.93	0.402	0.99	0.27	3.57	0.988
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**Travel time to hospital (<= 1 hour)**

>1 hour	0.70	0.22	2.24	0.551	0.62	0.14	2.81	0.533
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**Travel time to GP (<=10 minutes)**

>10 minutes	1.00	0.61	1.66	0.850	0.62	0.32	1.19	0.149
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**Number of outpatient appointments in last 6 months (vs 0-2)**

≥3	0.64	0.32	1.30	0.215	1.21	0.54	2.71	0.644
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**Number of GP appointments in last 6 months (vs 0-2)**

≥3	0.84	0.48	1.47	0.549	1.66	0.87	3.17	0.126
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**Baseline MTBQ category (vs no burden)**

Low	0.71	0.39	1.29	0.260	0.89	0.38	2.08	0.786
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Medium	0.37	0.19	0.71	<b>0.003</b>	1.20	0.52	2.75	0.666
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High	(omitted)							
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**Table S4 - Comparison of aspects of the longitudinal treatment burden study by Eton et al. \* and this study**

	<b>Dorset follow up survey</b>	<b>Eton longitudinal study*</b>
<b>Population</b>	<p>300 people with three or more multiple long term conditions (LTCs) of a total potential 525 followed up from the baseline survey.</p> <p>All aged 55 or over.</p> <p>Median age 77</p>	<p>396 adults with multiple LTCs from a random sample of 1496 people with MLTC age 20 and above.</p> <p>Median age 63</p>
<b>How multimorbidity defined</b>	<p>Three or more from a list of 19 LTCs selected as common, readily identified from coding in GP records, and representing a range of body systems</p>	<p>Two or more of 27 chronic conditions (including conditions identified as national public health priorities) identified from International Classification of Disease (ICD) diagnostic coding by a health care provider</p>
<b>Treatment burden measure</b>	<p>Multimorbidity Treatment Burden Questionnaire (MTBQ)</p>	<p>Patient Experience with Treatment and Self-management (PETS)</p>
<b>Timeframe</b>	<p>Two time points:</p> <p>Baseline: 2019</p> <p>Follow up: 2021</p>	<p>Four time points:</p> <p>Baseline ?2015/16</p> <p>6 months</p> <p>12 months</p> <p>24 months</p>
<b>Outcomes</b>	<p>Increasing treatment burden defined as increase in MTBQ global score (0-100).</p> <p>Treatment burden also categorised to none (global score of 0), low (&gt;0 and &lt;10), medium (≥10 and &lt;22), or high (≥22).</p>	<p>Trajectories of treatment burden by 'workload' and 'impact' metrics developed by latent class growth mixture modelling.</p> <p>High treatment burden impact.</p> <p>Increasing treatment burden.</p>
<b>Independent associations with increased treatment burden</b>	<p><b>With increase in MTBQ global score:</b></p> <ul style="list-style-type: none"> <li>• Having more than five LTCs</li> <li>• Living more than 10 minutes from the GP</li> </ul> <p>No statistically significant association observed with changes in treatment burden category (either increase or decrease)</p>	<p><b>Consistently high workload:</b></p> <ul style="list-style-type: none"> <li>• Lower health literacy</li> <li>• Lower self-efficacy</li> <li>• Higher interpersonal challenges with others</li> </ul> <p><b>Increasing impact:</b></p> <ul style="list-style-type: none"> <li>• More physically unhealthy days</li> <li>• Higher interpersonal challenges</li> </ul>

		<p>with others</p> <p><b>Consistently high impact:</b></p> <ul style="list-style-type: none"> <li>• More mentally unhealthy days</li> <li>• Lower health literacy</li> <li>• Higher interpersonal challenges with others</li> </ul>
<b>Setting</b>	Primary Care practices in Dorset Engl	Southeastern Minnesota, USA

\* Summarised from Ref 35: Eton DT, Anderson RT, St. Sauver JL, Rogers EA, Linzer M, Lee M. Longitudinal trajectories of treatment burden: A prospective survey study of adults living with multiple chronic conditions in the midwestern United States. *Journal of Multimorbidity and Comorbidity* 2022;12:1-14. doi:10.1177/26335565221081291