ORIGINAL RESEARCH

Patient-reported outcomes for migraine in the US and Europe: Burden associated with multiple preventive treatment failures

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Supplementary materials

Supplementary Methods

In an additional analysis, preventive-treated subpopulations were defined broadly to narrowly by the number of treatment lines (1+, 2+, and 3+), in order to understand how patient burden changed when a subpopulation is expanded or restricted (1+ to 3+ failures). All analyses were descriptive in nature. In this analysis, the preventive-treated subpopulations were not mutually exclusive; that is, the 3+ preventive lines group was a subpopulation of the 2+ and 1+ preventive lines groups, and the 2+ preventive lines group was a subpopulation of the 1+ preventive lines group.

To evaluate differences between preventive-naïve patients and those who received 1+, 2+, or 3+ preventive lines of therapy, continuous variables with an approximately normal distribution were compared using a *t* test and those not normally distributed and ordinal (ordered categorical) were compared using a Mann–Whitney test. The Shapiro-Wilk test was used to test normality; numerical variables that failed the Shapiro-Wilk normality test were tested using Mann Whitney.

Supplementary Results

Results of the additional analysis, in which preventive-treated subpopulations were defined broadly to narrowly by the number of treatment lines (1+, 2+, and 3+), are shown in Supplementary Figures 1−5. In these analysis, the preventive-treated subpopulations were not mutually exclusive; that is, the 3+ preventive lines group was a subpopulation of the 2+ and 1+ preventive lines groups, and the 2+ preventive lines group was a subpopulation of the 1+ preventive lines group. In general, patients in the 3+ preventive lines subgroups had a greater migraine burden than those with more broadly defined preventive-treated migraine and those who were preventive naïve.

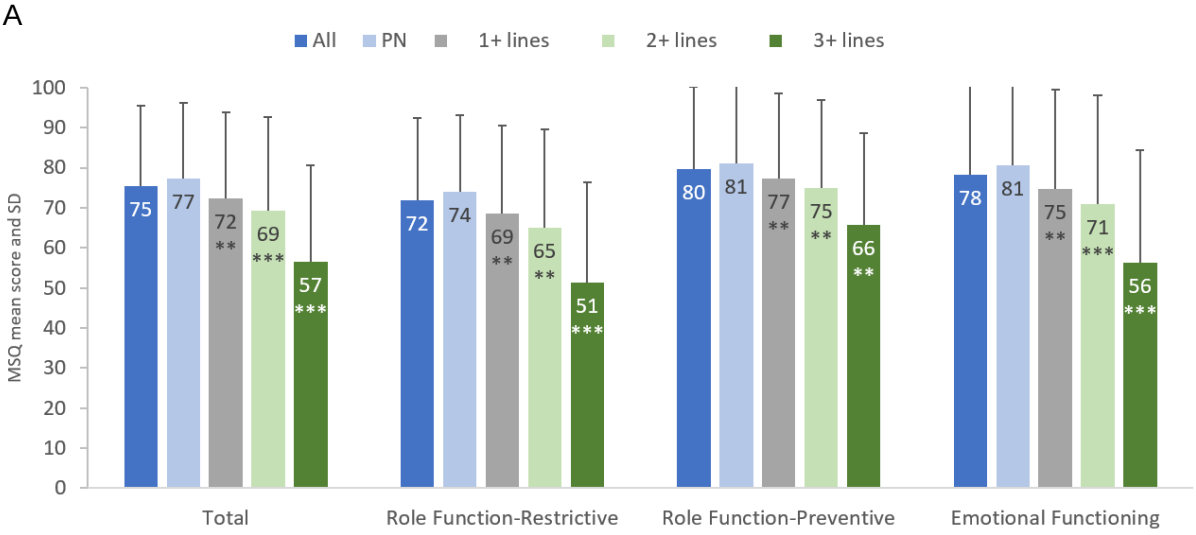
Supplementary Figures

Supplementary Figure 1. Migraine-Specific Quality of Life Questionnaire (MSQ) domain scores according to number of lines of preventive treatments ever received in A) the US and B) the EU. Each domain score ranged from 0 to 100, with higher scores indicating better health status. The number of patients with data varied by subgroup size (see Table 1).

***p*<0.01 versus PN; ****p*<0.001 versus PN (Mann-Whitney test).

Note: Patients in the 2+ group are also included in the 1+ group; patients in the 3+ group are also included in the 1+ group and the 2+ group.

A



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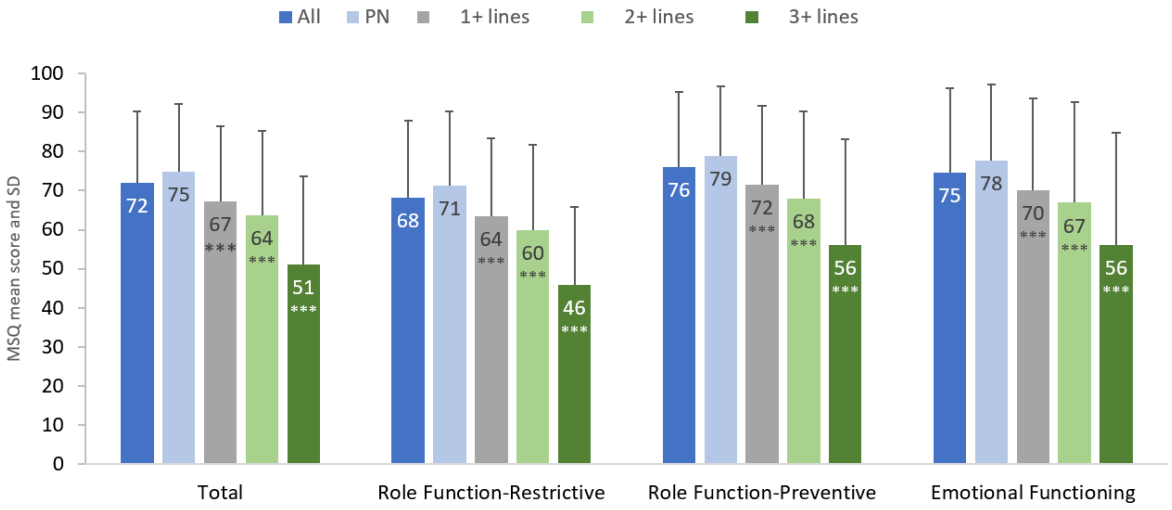
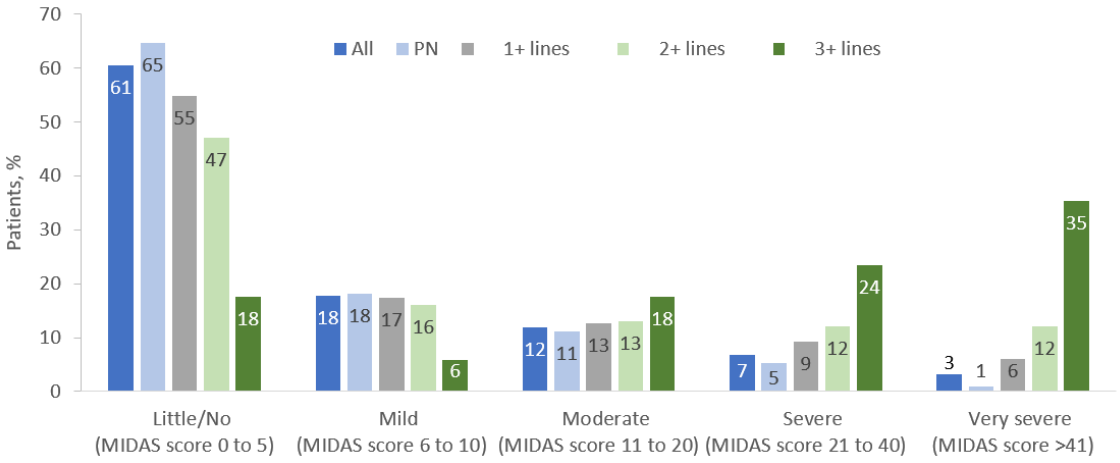


Supplementary Figure 2. Migraine Disability Assessment Scale (MIDAS) scores according to number of lines of preventive treatments ever received in a) the US and b) the EU. Higher scores indicate greater disability. The number of patients with data varied by subgroup size. All $p<0.01$ versus PN (Mann-Whitney test)

Abbreviation: PN, preventive naïve.

Note: Patients in the 2+ group are also included in the 1+ group; patients in the 3+ group are also included in the 1+ group and the 2+ group.

A



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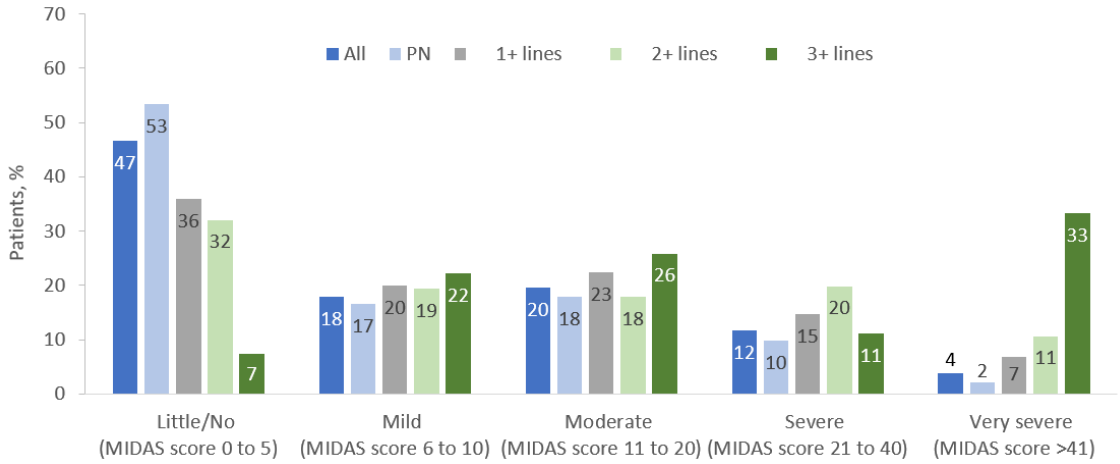
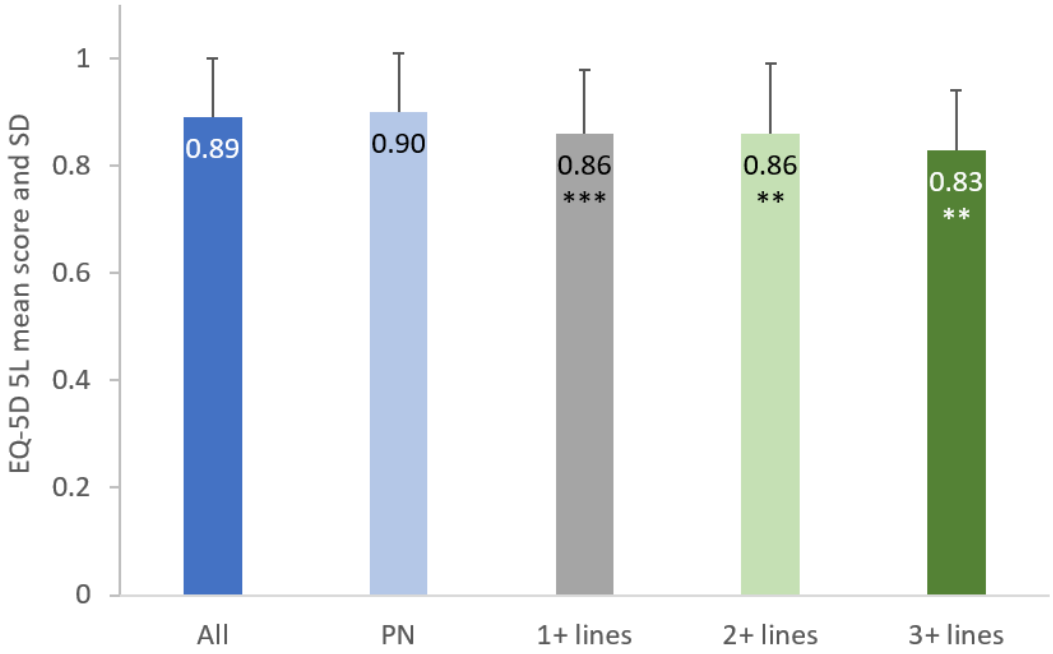


Supplementary Figure 3. EQ-5D-5L scores according to number of lines of preventive treatments ever received: A) mean EQ-5D 5-level score in the US, cross-walked to 3-level score and B) mean VAS score in the US; C) mean EQ-5D 5-level score in the EU, cross-walked to 3-level score and D) mean VAS score in the EU. Patients completed the EQ-5D-5L; scores were cross-walked to the 3L version [van Reenan & Janssen 2019; NICE 2018]. The number of patients with data varied by subgroup size. ***p*<0.01 versus PN; ****p*<0.0001 versus PN (Mann-Whitney test).

Abbreviations: PN, preventive-naïve; VAS, visual analog scale

Note: Patients in the 2+ group are also included in the 1+ group; patients in the 3+ group are also included in the 1+ group and the 2+ group.

A



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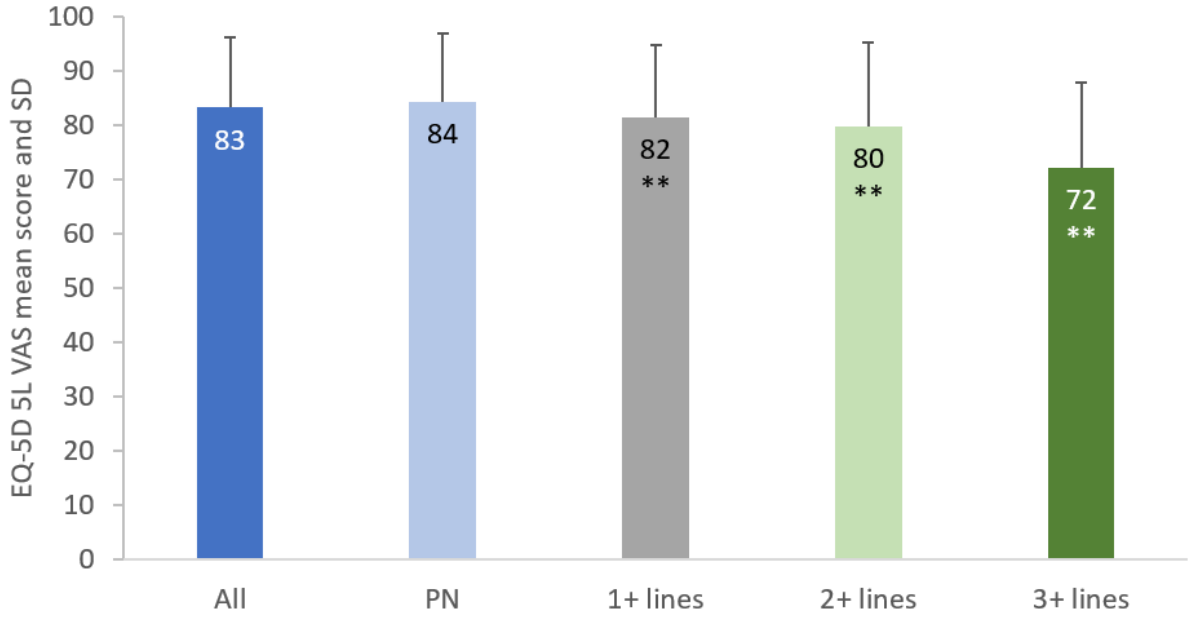
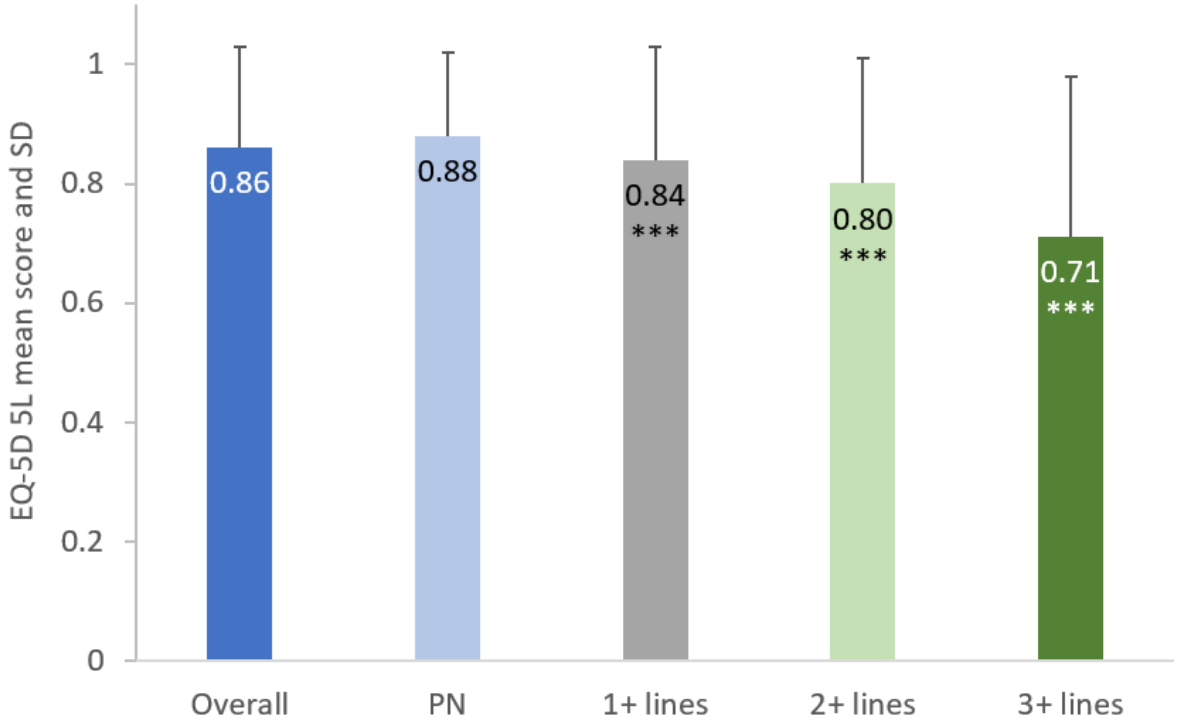
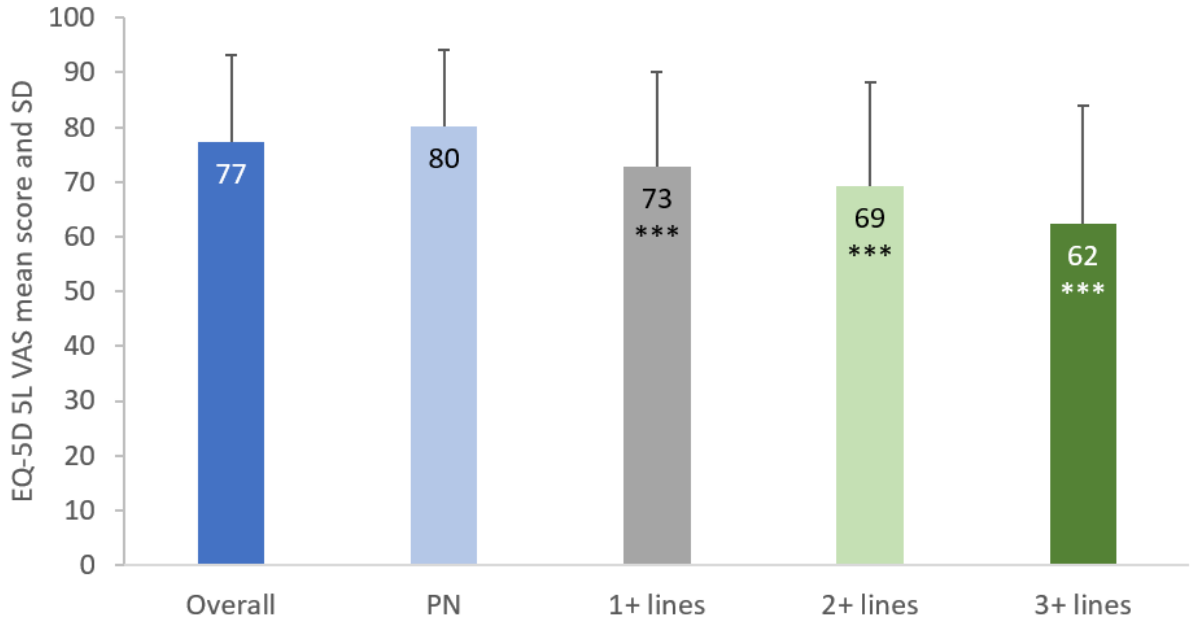

EQ-5D 5L VAS mean score and SD
100
90
80
70
60
50
40
30
20
10
0
83
84
82
**
80
**
72
**
All
PN
1+ lines
2+ lines
3+ lines

C


EQ-5D 5L mean score and SD
1
0.8
0.6
0.4
0.2
0
0.86
0.88
0.84
***
0.80
***
0.71
***
Overall
PN
1+ lines
2+ lines
3+ lines

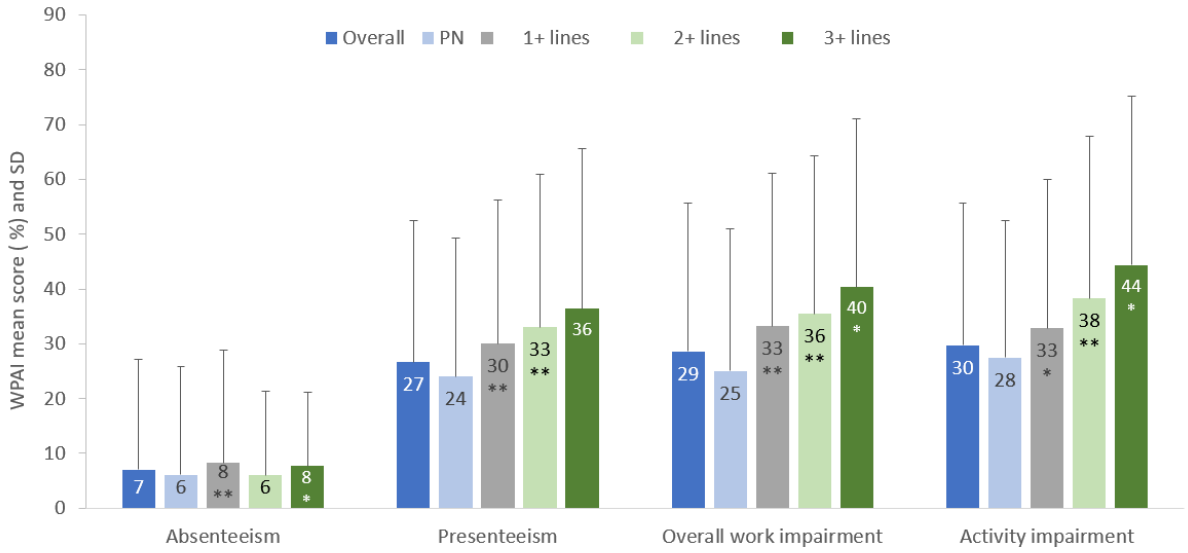
D


EQ-5D 5L VAS mean score and SD
100
90
80
70
60
50
40
30
20
10
0
77
80
73
***
69
***
62
***
Overall
PN
1+ lines
2+ lines
3+ lines

Supplementary Figure 4. Work productivity and activity impairment (WPAI) in A) the US and B) the EU according to number of lines of migraine preventive treatments ever received. The number of patients with data varied by subgroup size.
*p<0.05 versus PN; **p<0.01 versus PN; ***p<0.0001 versus PN (Mann-Whitney test).
Abbreviations: PN, preventive-naïve; WPAI, Work Productivity and Activity Impairment.

Note: Patients in the 2+ group are also included in the 1+ group; patients in the 3+ group are also included in the 1+ group and the 2+ group.

A



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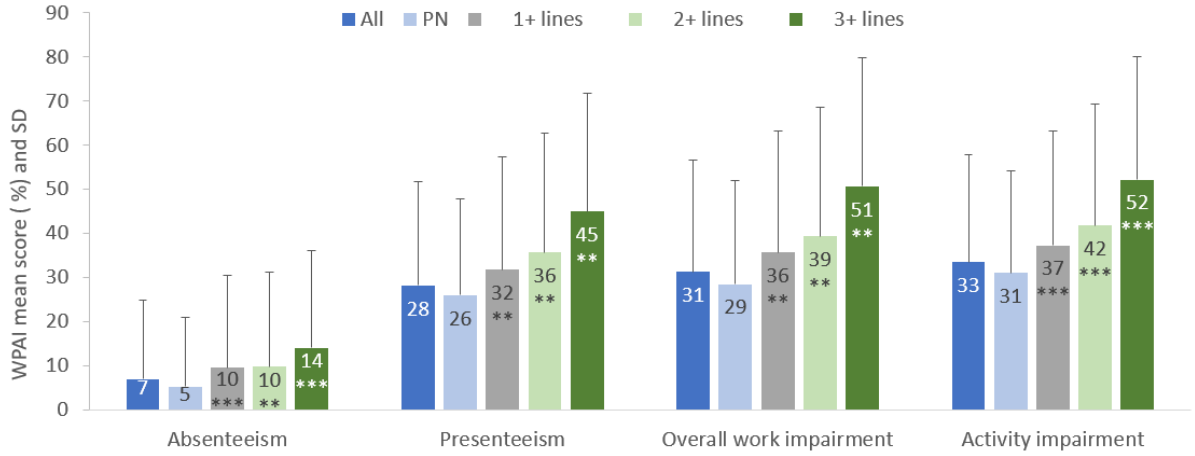
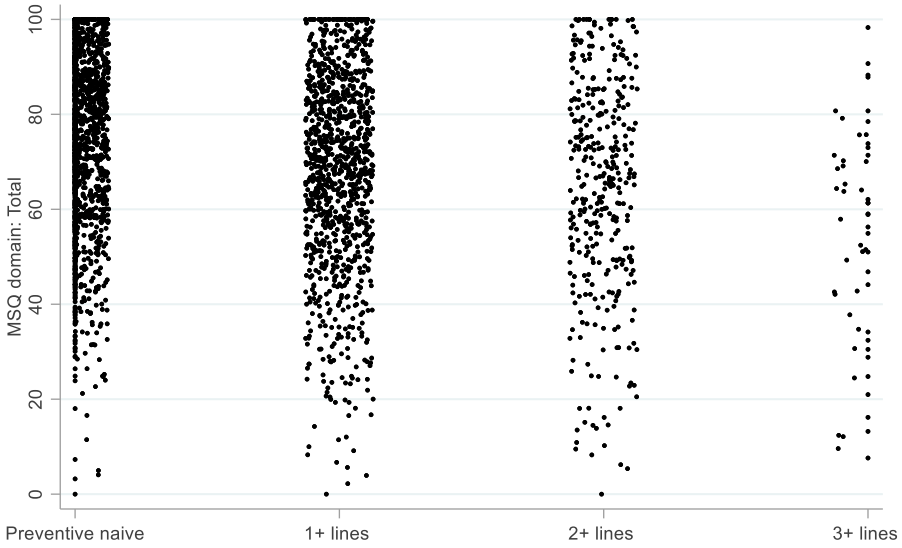


Supplementary Figure 5. Scatter plots for patient-reported outcomes in the EU and US: A) MSQ Total score; B) MSQ Role Function-Preventive score; C) MSQ Role Function-Restrictive score; D) MSQ Emotional Function score; E) MIDAS total score; F) EQ-5D-5L utility score. Patients completed the EQ-5D-5L; scores were cross-walked to the 3L version [van Reenan & Janssen 2019; NICE 2018]; G) EQ-5D visual analogue scale score; H) WPAI percent absenteeism; I) WPAI percent presenteeism; J) WPAI percent overall work impairment; K) WPAI percent activity impairment.

A



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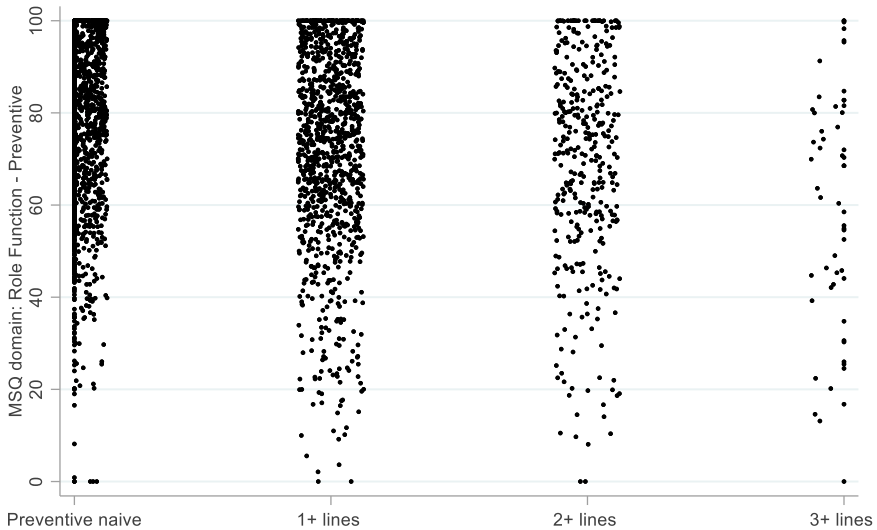

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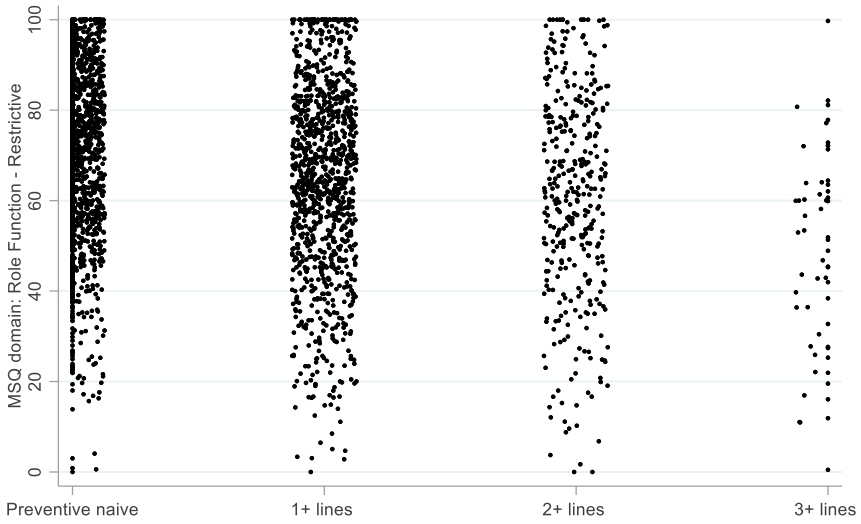
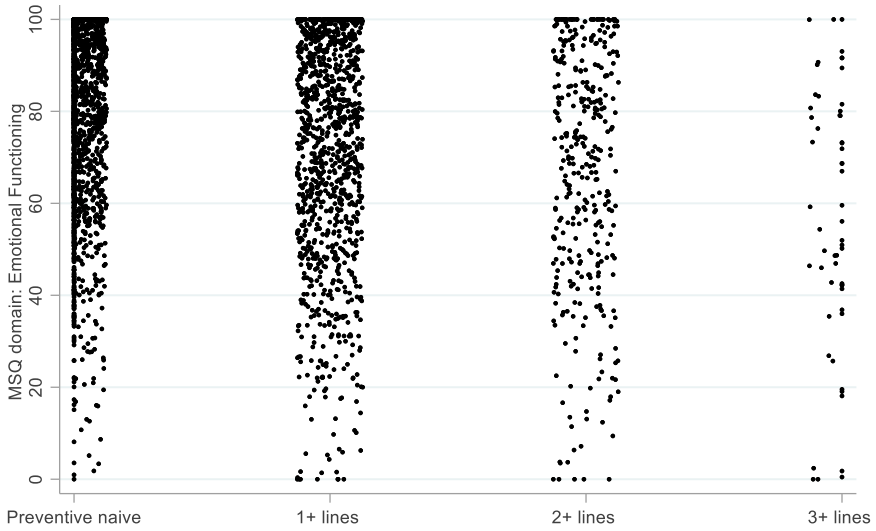
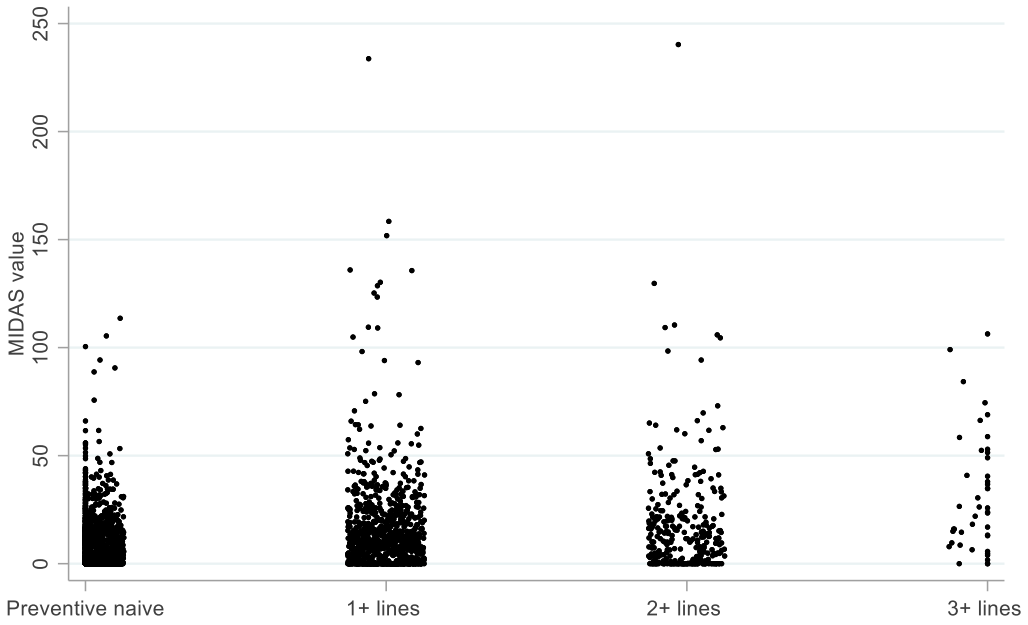

MSQ domain: Role Function - Restrictive
0
20
40
60
80
100
Preventive naive
1+ lines
2+ lines
3+ lines

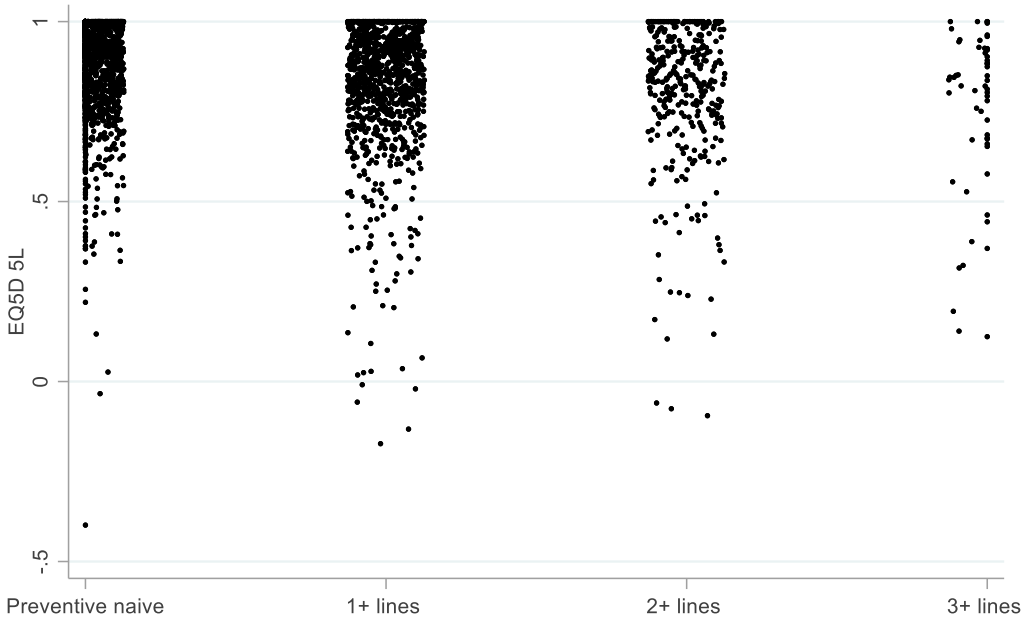
D


MSQ domain: Emotional Functioning
0
20
40
60
80
100
Preventive naive
1+ lines
2+ lines
3+ lines

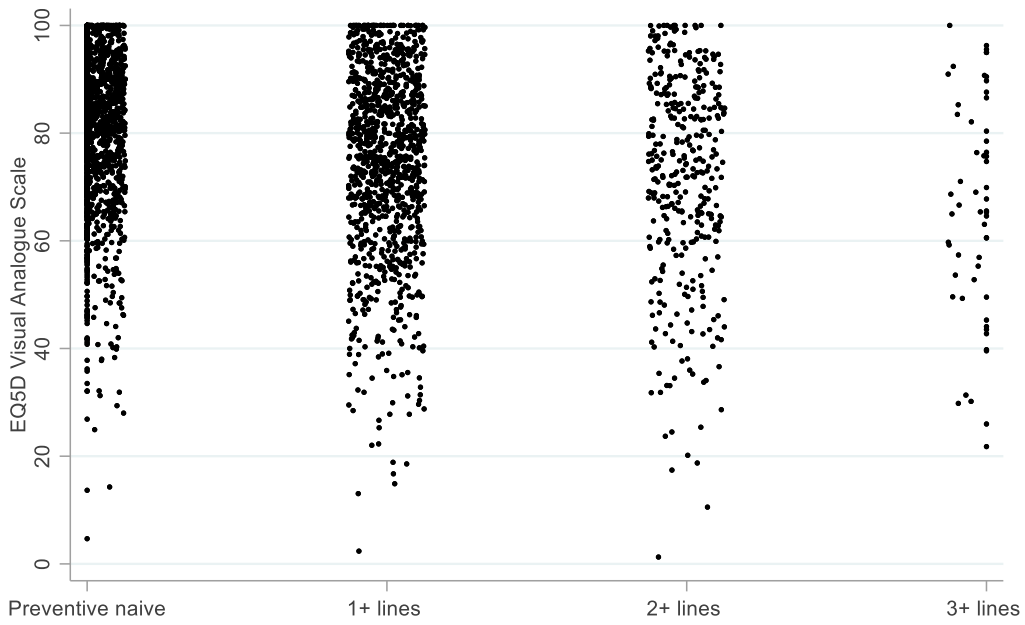
E


MIDAS value
0
50
100
150
200
250
Preventive naive
1+ lines
2+ lines
3+ lines

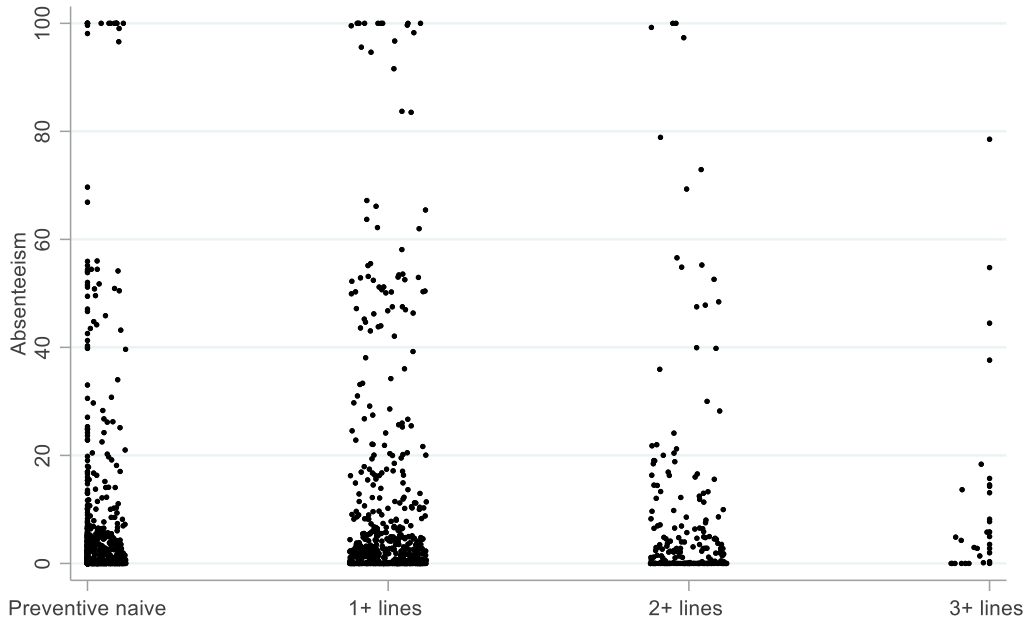
F


EQ5D 5L
-.5
0
.5
1
Preventive naive
1+ lines
2+ lines
3+ lines

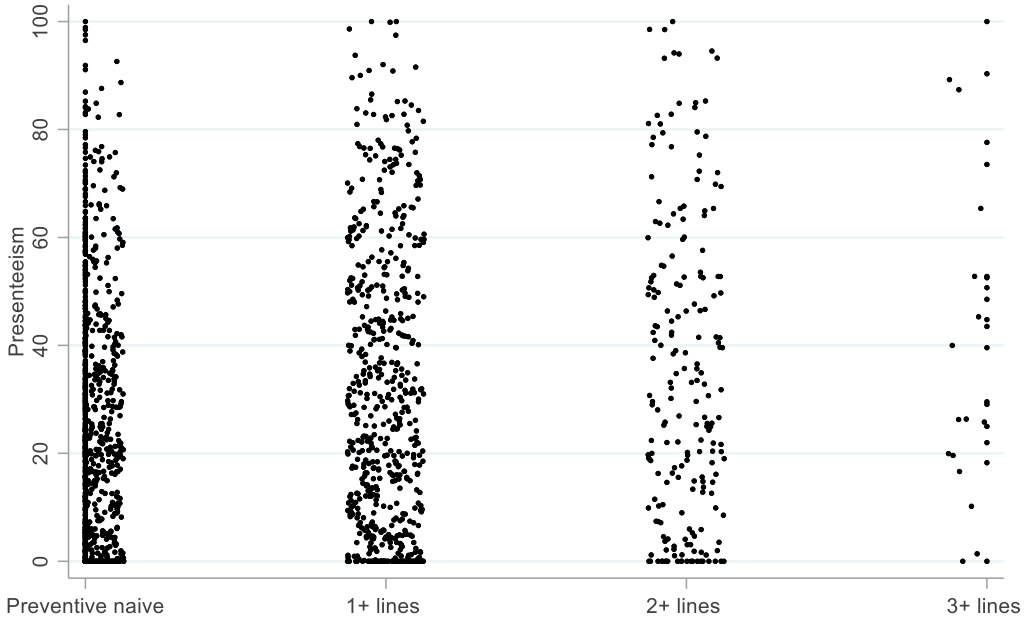
G


EQ5D Visual Analogue Scale
0
20
40
60
80
100
Preventive naive
1+ lines
2+ lines
3+ lines

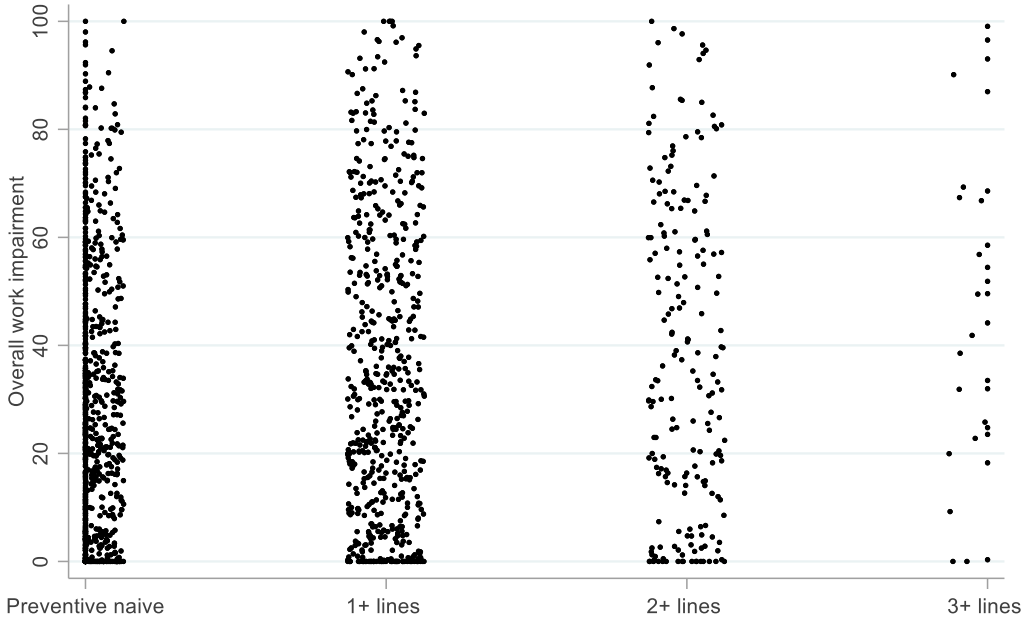
H


Absenteeism
0
20
40
60
80
100
Preventive naive
1+ lines
2+ lines
3+ lines

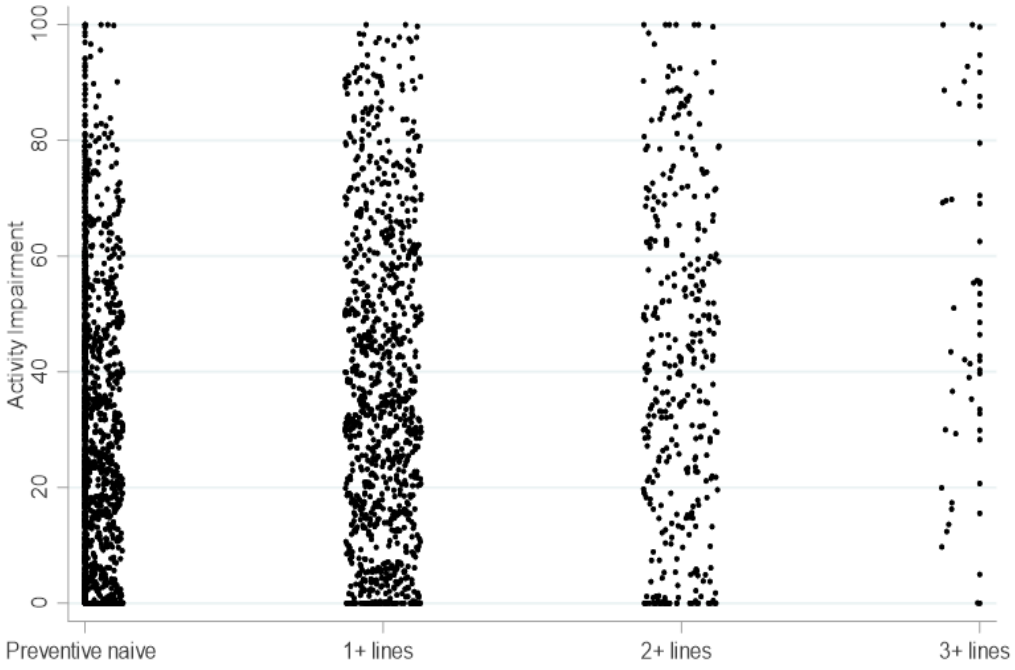
I


Presenteeism
0
20
40
60
80
100
Preventive naive
1+ lines
2+ lines
3+ lines

J


Overall work impairment
0
20
40
60
80
100
Preventive naive
1+ lines
2+ lines
3+ lines

K


Activity Impairment
0
20
40
60
80
100
Preventive naive
1+ lines
2+ lines
3+ lines