

Understanding Different Treatment Goals and Experiences According to Characteristics in Relapsed/Refractory Multiple Myeloma

Objectives



To investigate the association between patient characteristics and treatment goals, expectations, and experiences among patients with RRMM to understand the unmet needs within patient groups

Conclusions



- Patient characteristics are associated with differing burdens, treatment goals, and experiences. Understanding this is vital to tailoring treatment choices to meet patient expectations
 - Financial burden, age, and comorbidities are significantly associated with a treatment meeting patient expectations
- Understanding personal perspectives of different patient groups can help HCPs offer patients support for treatment decisions and enhance adherence to therapy
- These findings also highlight the importance of considering patient goals when designing clinical trials



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References: 1. Mikhael J, et al. J Clin Oncol 2019;37:1228-1263. 2. Banerjee R, et al. Blood Cancer 2024;14:149. 3. Ailawadhi S, et al. Patient Prefer Adherence 2025;19:1089-1104.

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Background

- The treatment landscape for multiple myeloma (MM) is complex and rapidly evolving, leading to challenging treatment decisions for patients and their healthcare providers (HCPs)¹⁻³
- Patient and disease heterogeneity also influence treatment choices in relapsed or refractory MM (RRMM)
- Personalizing the approach to decision-making and treatment choice based on understanding these differences may help improve the overall patient experience and relationships with HCPs

Results

PATIENTS AND HCPs

- Patient (N=1301) demographics and HCP (N=983) characteristics are available in **Supplementary Tables 1** and **2**

MULTIVARIATE ANALYSIS

- Multivariate analysis identified that financial burden, age, and comorbidities are significantly associated with a treatment meeting patient expectations (**Supplementary Figure 1**)
 - Other categories, including dependents, employment status, and education, showed less significant associations

FINANCIAL BURDEN

- Patients with high financial burden prioritized slowing down disease progression, limiting treatment-related side effects, and limiting costs (**Figure 1**)
- Their treatment experience was reported to be significantly worse than expected compared with more financially stable patients (**Figure 2**)

AGE

- The greatest priorities for patients aged ≥65 years were limiting side effects and slowing disease progression (**Figure 1**)
- Patients aged ≥65 years faced worse physical burdens than patients aged <65 (78% vs 69%, *P*=.024), although emotional or mental burden was not significantly different (**Supplementary Figure 2**)
- Treatment experience was worse than expected in patients aged ≥65 years, particularly for quality of life (QOL), side effects, and mental health (**Figure 2**)

Methods

- A 30-minute, web-based quantitative survey was conducted across 7 countries (US, UK, France, Germany, Italy, Spain, and Japan)
- Patient inclusion criteria: ≥18 years of age; diagnosed with MM, with disease progression or ≥1 relapse
- HCP inclusion criteria: specialists in medical oncology, hematology/ oncology, hematology (US only), transplant surgery, or internal medicine practicing full time and managing ≥3 patients with MM receiving second-line (2L) or later treatment in the past 12 months

COMORBIDITIES

- Patients with ≥3 comorbidities ranked slowing disease worsening, limiting side effects, and limiting costs as more important treatment goals than living longer (**Figure 1**)
- Patients with ≥3 comorbidities faced more physical and emotional burdens and experienced worse than expected treatment outcomes than patients with <3 comorbidities, notably QOL (**Figure 2**)

LINE OF THERAPY

- Patients in second line (2L) treatment considered convenience to be more important than those in third line or later (≥3L) (**Figure 1**)
- Patients in the ≥3L treatment perceived their treatment and care to have a worse impact on mental health than expected compared with patients in the 2L (**Figure 2**)

SEX

- Fewer females than males were in remission (27% vs 42%, *P*<.01). Not being in remission was strongly associated with females feeling greater physical burden than males (78% vs 73%, *P*=.035) (**Supplementary Figure 2**) and with treatment outcomes being worse than expected for females, including for perceived efficacy, impact on mental health, and QOL (**Figure 2**)
- Not being in remission was also strongly associated with females facing more financial difficulties (39% vs 28%) and comorbidities (76% vs 67%, *P*<.01) than males
- Fewer females than males were treated by specialists (49% vs 59%, *P*<.01), which was weakly associated with not being in remission
- Emotional or mental burden was similar between males and females (64% vs 60%)

- Data collection occurred between March and June 2024
- Certain survey questions were curated to be comparable across both patient and HCP surveys. Other questions were tailored specifically to the unique viewpoints of each participant group
- Questions were presented in a range of formats, including multiple choice (single or multiple selection) and prioritization (ranking and rating). All questions in the survey were close-ended questions
- Data were analyzed using descriptive statistics and χ^2 tests

SHARED DECISION-MAKING

- Only 13% of patients preferred their HCP to make treatment decisions alone (more so in patients aged <65 vs ≥65 years and in 2L vs ≥3L) (**Figure 3**)
- However, HCPs reported recommending treatment without discussing patient goals in 22% of cases
- Patients wanted more discussion on side effects and safety risks (42%), impact on mental health (42%), and possible impact of side effects on daily life (41%; **Supplementary Figure 3**)
 - HCPs reported discussing more topics than patients recalled (**Supplementary Figure 4**)

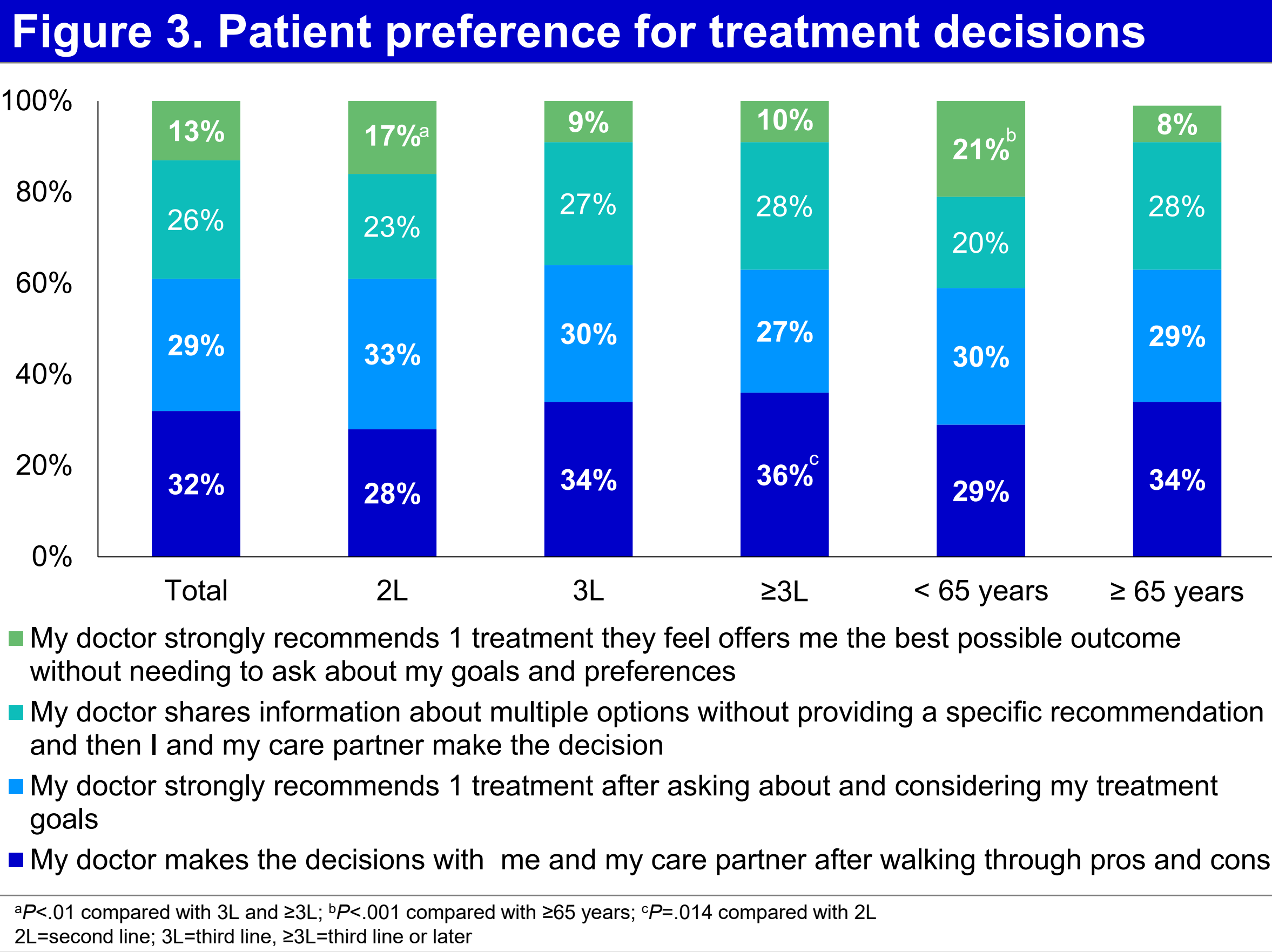


Figure 1. Patient treatment goals (% of patients who ranked goal in top 3)														
More common Less common	Total	Line of therapy				Age		Sex		Financial burden			Comorbidities	
		2L	3L	≥4L	≥3L	<65 years	≥65 years	Male	Female	Easy/very easy	Neutral	Difficult/very difficult	<3	≥3
N	1301	553	476	272	748	456	845	829	471	337	547	417	1093	208
Slowing down my MM from getting worse	48%	47%	51%	46%	49%	40%	53% ^a	48%	48%	42%	46%	57% ^b	47%	55%
Limiting treatment-related side effects	46%	43%	48%	50%	49%	33%	53% ^a	44%	50%	34%	45% ^c	57% ^b	45%	53%
Ability to help me live longer (including helping me reach important milestones)	38%	39%	38%	37%	38%	42%	36%	38%	38%	39%	39%	38%	40%	30%
Ability to help me do my everyday activities more easily and comfortably	35%	37%	33%	35%	34%	31%	38%	35%	36%	36%	36%	34%	35%	36%
Limiting costs and financial challenges related to treatment	30%	27%	32%	34%	33%	25%	33%	29%	32%	26%	26%	40% ^b	29%	39%
Choosing a treatment that is convenient for me in how I take it, or the timing	30%	35% ^d	26%	26%	26%	40% ^a	24%	32%	27%	38% ^e	32% ^e	21%	32%	22%
Limiting challenges for my care partner/carer	24%	25%	23%	21%	22%	29% ^f	21%	25%	21%	32% ^g	24% ^h	16%	24%	22%
Ensuring I can be treated without referral to another institution	24%	24%	24%	24%	24%	32% ^a	20%	26%	21%	27% ^d	28% ^d	17%	25%	17%
Avoid hurting potential to receive treatment options later in my disease journey	24%	22%	24%	27%	25%	26%	22%	22%	26%	26%	24%	21%	23%	25%

^a*P*<.01 within subcategory; ^b*P*<.01 compared with easy/very easy and neutral; ^c*P*<.01 compared with easy/very easy; ^d*P*<.01 compared with other lines; ^e*P*<.01 compared with difficult/very difficult; ^f*P*=.023 compared with ≥65; ^g*P*<.020 compared with difficult/very difficult; ^h*P*=.01 compared with difficult/very difficult
2L=second line; 3L=third line; ≥3L=third line and later; ≥4L=fourth line and later; MM=multiple myeloma

Figure 2. Patient treatment experience not meeting expectations															
More common Less common	Total	Line of therapy				Age		Sex		Financial situation			Comorbidities		
		2L	3L	≥4L	≥3L	<65 years	≥65 years	Male	Female	Easy/very easy	Neutral	Difficult/very difficult	<3	≥3	
N	1301	553	476	272	748	456	845	829	471	337	547	417	1093	208	
How difficult or manageable side effects were	45%	40%	49% ^a	49%	49% ^b	19%	59% ^c	42%	51% ^c	24%	42% ^d	66% ^e	43%	56% ^c	
Impact on my emotional or mental health	44%	36%	51% ^b	47% ^f	49% ^b	21%	56% ^c	39%	52% ^c	24%	42% ^d	63% ^e	42%	55% ^c	
Overall impact on my everyday life	41%	35%	47% ^b	45% ^g	46% ^b	20%	53% ^c	37%	50% ^c	21%	39% ^d	61% ^e	38%	60% ^c	
Impact of treatment schedule on my day-to-day life	41%	34%	46% ^b	45% ^h	46% ^b	18%	53% ^c	36%	48% ^c	19%	39% ^d	61% ^e	39%	52% ^c	
Costs related to the treatment (including any indirect costs such as missed work)	39%	34%	42% ⁱ	41%	42% ^j	18%	49% ^c	36%	43% ^c	17%	34% ^d	63% ^e	36%	53% ^c	
How well the treatment worked	36%	30%	40% ^b	43% ^b	41% ^b	13%	48% ^c	32%	42% ^c	16%	36% ^d	52% ^e	34%	48% ^c	
Travel time and schedule required for the treatment	36%	31%	39% ^k	40%	39% ^l	14%	47% ^c	32%	43% ^c	16%	34% ^d	54% ^e	33%	50% ^c	
Amount of time spent in a hospital or treatment center	36%	28%	41% ^b	44% ^b	42% ^b	17%	46% ^c	33%	42% ^c	16%	36% ^d	52% ^e	33%	50% ^c	
Impact on my care partner/carer and/or loved ones	34%	30%	38%	36%	37%	16%	44% ^c	31%	39% ^c	19%	33% ^d	48% ^e	34%	36%	
Communication with health care providers like doctors and nurses	21%	19%	24%	19%	22%	12%	25% ^c	19%	24% ^c	12%	23% ^d	24% ^d	19%	27%	

^a*P*=.013 compared with 2L; ^b*P*<.01 compared with 2L; ^c*P*<.01 within subcategory; ^d*P*<.01 compared with easy/very easy; ^e*P*<.01 compared with easy/very easy and neutral; ^f*P*=.024 compared with 2L; ^g*P*=.020 compared with 2L; ^h*P*=.011 compared with 2L; ⁱ*P*=.045 compared with 2L; ^j*P*=.040 compared with 2L; ^k*P*=.042 compared with 2L; ^l*P*=.011 compared with 2L
2L=second line; 3L=third line; ≥3L=third line and later; ≥4L=fourth line and later



Supplementary Table 1. Patient demographics

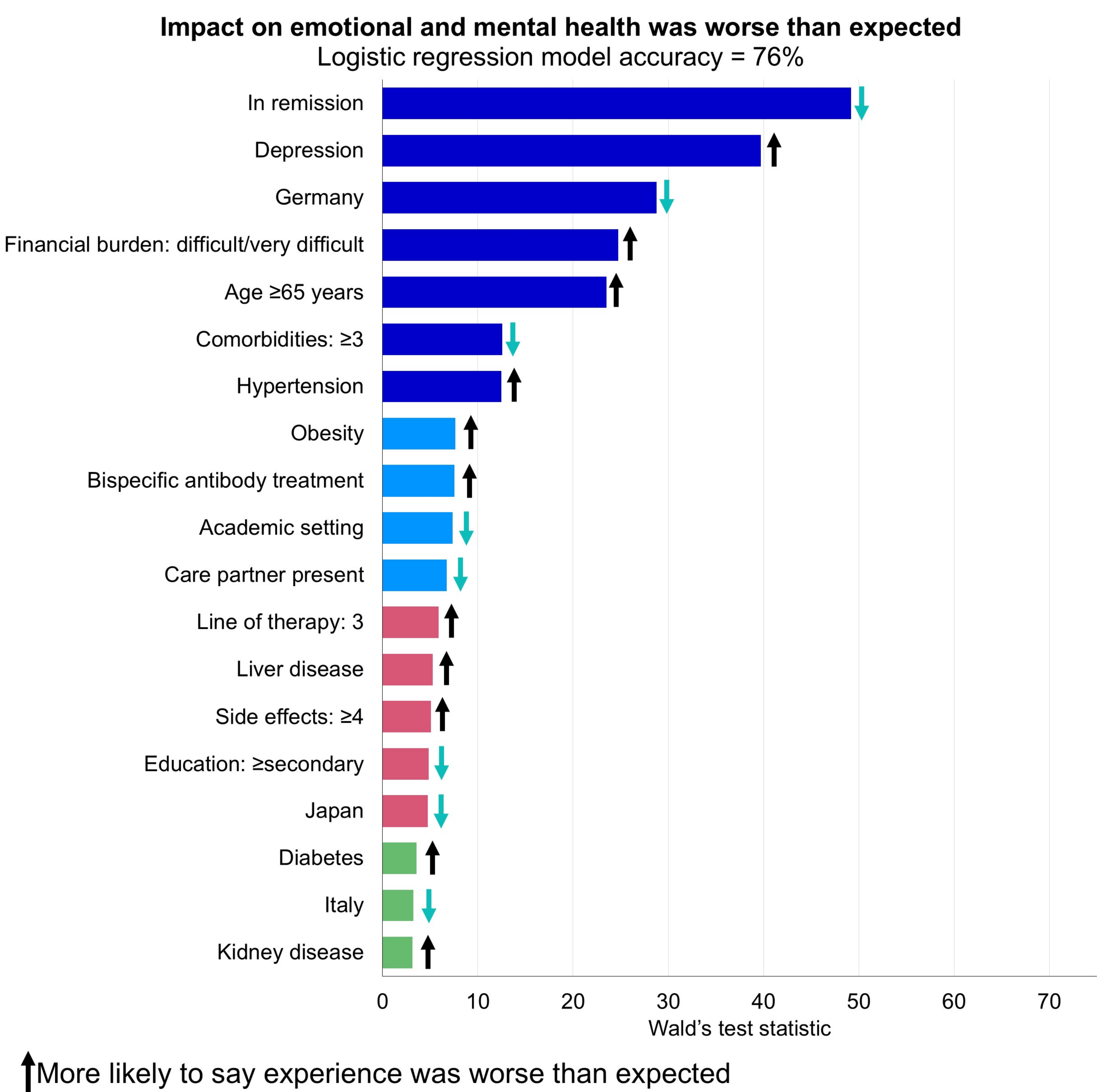
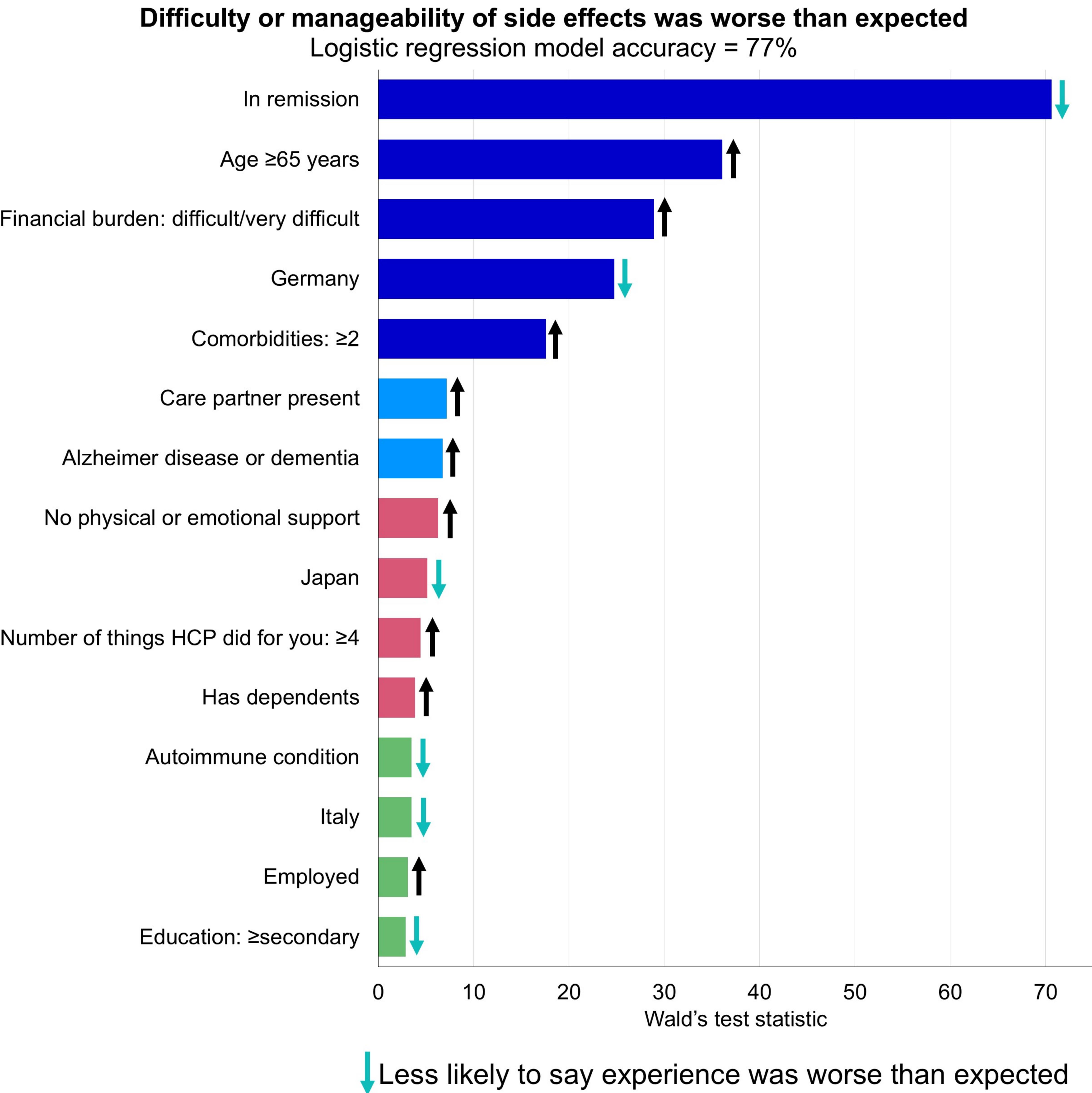
Supplementary Table 1. Patient demographics											
		Total N=1301	US n=305	Japan n=126	France n=256	Germany n=207	Italy n=162	Spain n=115	UK n=130	Ex-US n=996	EU5 n=870
Current line of treatment , n (%)	2L	553 (43)	136 (45)	49 (39)	129 (50)	98 (47)	72 (44)	38 (33)	31 (24)	417 (42)	368 (42)
	3L	476 (37)	106 (35)	51 (40)	69 (27) ^a	79 (38)	66 (41)	57 (50)	48 (37)	370 (37)	319 (37)
	≥4L	272 (21)	63 (21)	26 (21)	58 (23)	30 (14)	24 (15)	20 (17)	51 (39)	209 (21)	183 (21)
Currently in remission		477 (37)	133 (44)	51 (40)	97 (38)	94 (46)	51 (32)	12 (10)	39 (30)	344 (35)	293 (34) ^b
Age, n (%)	<65	456 (35)	122 (40)	19 (15)	102 (40)	82 (40)	64 (40)	16 (14)	51 (39)	334 (34)	315 (36)
Sex, n (%)	Male	829 (64)	204 (67)	88 (70)	165 (65)	123 (59)	98 (60)	74 (64)	77 (59)	625 (63)	537 (62)
Employment status, n (%)	Employed	511 (39)	142 (47)	37 (29)	89 (35)	90 (43)	72 (44)	27 (23) ^c	54 (42)	369 (37)	332 (38)
Financial situation, n (%) ^d	Easy/very easy	337 (26)	92 (30)	35 (28)	61 (24)	61 (29)	35 (22)	27 (23)	26 (20)	245 (25)	210 (24)
	Neutral	547 (42)	117 (38)	51 (40)	112 (44)	87 (42)	65 (40)	47 (41)	68 (52)	430 (43)	379 (44)
	Difficult/very difficult	417 (32)	96 (31)	40 (32)	83 (32)	59 (29)	62 (38)	41 (36)	36 (28)	321 (32)	281 (32)
Bold indicates <i>P</i> <.01 compared with total. ^a <i>P</i> =.014 compared with total; ^b <i>P</i> =.035 compared with total; ^c <i>P</i> =.012 compared with total; ^d Ability to afford necessities 2L=second line; 3L=third line; ≥4L=fourth line and later; EU5=France, Germany, Italy, Spain, and UK; EX-US=excluding US											

Supplementary Table 2. HCP characteristics

Supplementary Table 2. HCP characteristics											
		Total N=983	US n=251	Japan n=152	France n=150	Germany n=65	Italy n=150	Spain n=143	UK n=72	Ex-US n=732	EU5 n=580
Years in practice, n (%)	≤10 years	234 (24)	80 (32) ^a	27 (18)	32 (21)	9 (14)	33 (22)	34 (24)	19 (26)	154 (21) ^b	127 (22)
	11-20 years	438 (45)	101 (40)	55 (36)	78 (52)	38 (58)	59 (39)	68 (48)	39 (54)	337 (46)	282 (49)
	>20 years	311 (32)	70 (28)	70 (46)	40 (27)	18 (28)	58 (39)	41 (29)	14 (19)	241 (33)	171 (29)
Practice setting, n (%)	Academic	582 (59)	117 (47)	91 (60)	92 (61)	40 (62)	98 (65)	96 (67)	48 (67)	465 (64)	374 (64)
	Community	401 (41)	134 (53)	61 (40)	58 (39)	25 (38)	52 (35)	47 (33)	24 (33)	267 (36)	206 (36)
BsAb administration in practice, n (%) ^c		586 (71)	153 (61)	NA	119 (79)	45 (69)	120 (80)	105 (73)	44 (61)	433 (75)^d	433 (75)
CAR-T administration in practice, n (%) ^c		420 (46)	146 (58)	42 (28)	69 (46)	29 (45)	76 (51)	58 (41)	NA	274 (42)	232 (46)
Bold text denotes <i>P</i> <.01 compared with total. ^a <i>P</i> =.030 compared with total; ^b <i>P</i> =.018 compared with total; ^c Versus requiring referral; ^d Calculation excludes Japan											
BsAb=bispecific antibody; CAR-T=chimeric antigen receptor T cell; EU5=France, Germany, Italy, Spain, and UK; Ex-US=excluding US; HCP=healthcare provider; NA=not asked											

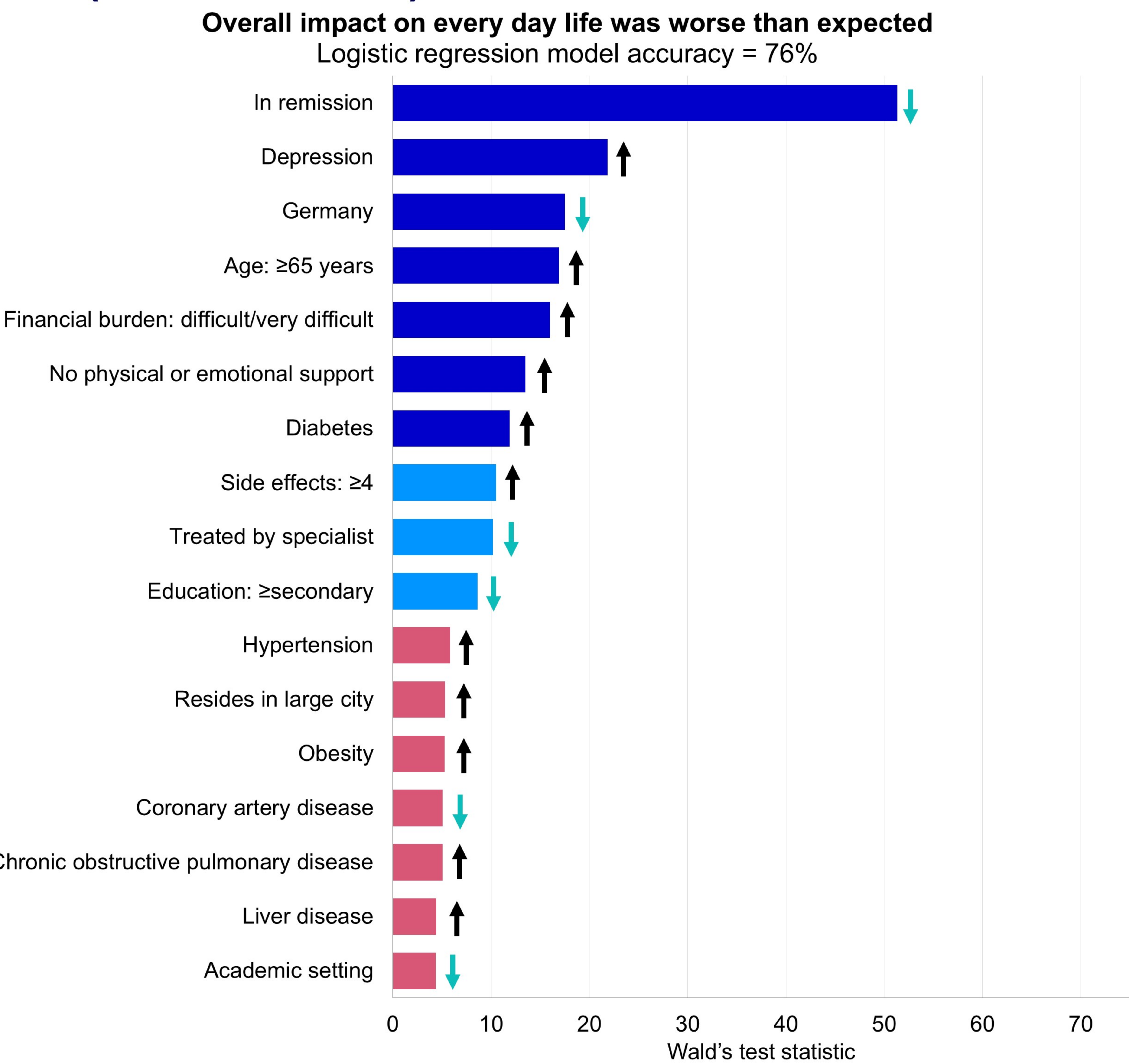


Supplementary Figure 1. Multivariable logistic regression analyses (continued on next slide)

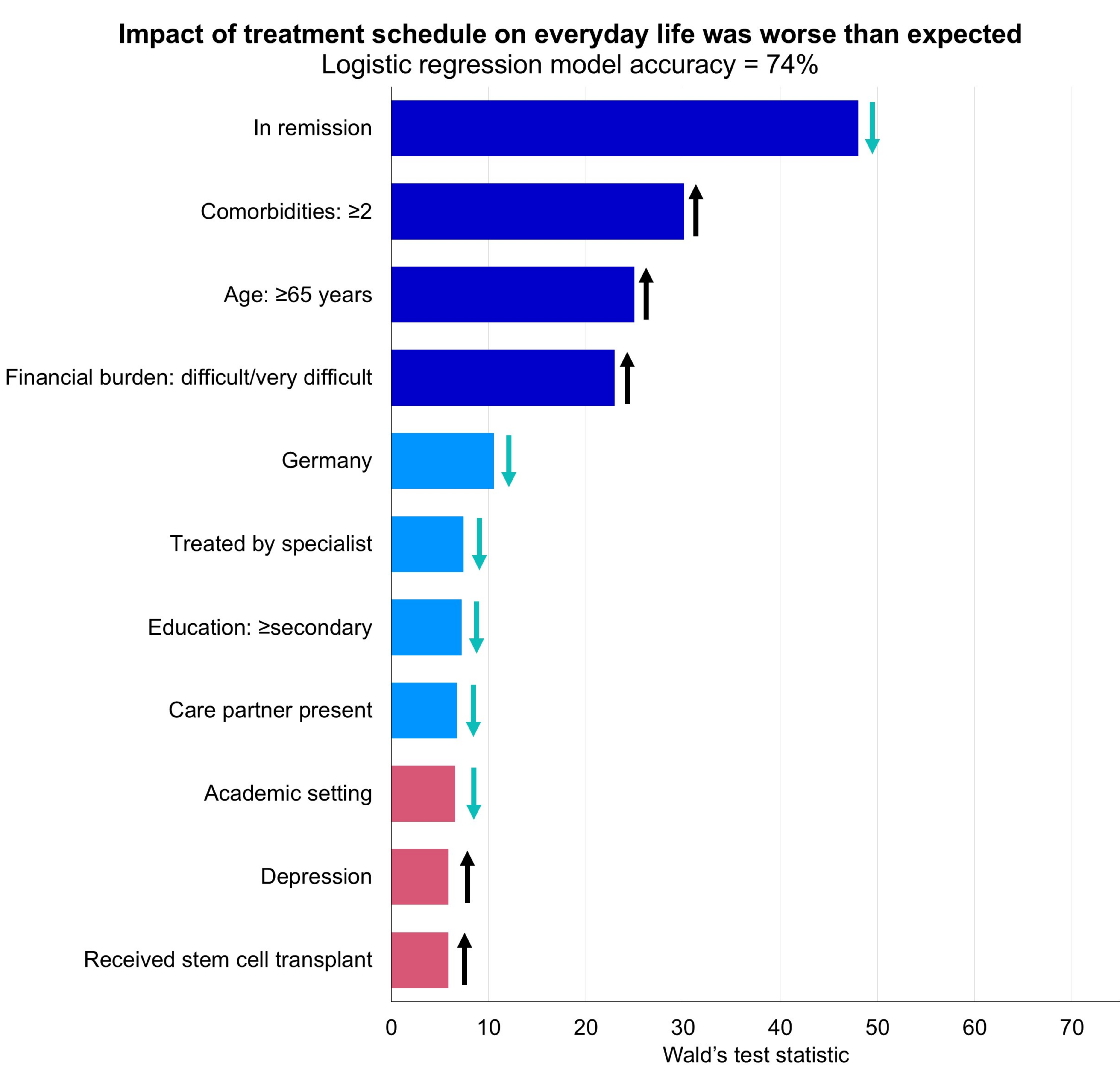




Supplementary Figure 1. Multivariable logistic regression analyses (continued)



↓ Less likely to say experience was worse than expected



↑ More likely to say experience was worse than expected

P < .001 P < .01 P < .05 P < .1



Supplementary Figure 2. Patient burden

Patients were asked whether they were experiencing any of the following burdens related to managing their MM

	Total	Age		Treated by specialist		Sex		Employment status		Education		Dependents		Financial burden		
		<65 years	≥65 years	Yes	No	Male	Female	Employed	Not Employed	≤ Secondary	> Secondary	Yes	No	Easy/very easy	Neutral	Difficult/very difficult
N	1301	456	845	716	585	829	471	511	790	251	1046	707	594	337	547	417
Physical	75%	69%	78% ^a	72%	77% ^b	73%	78% ^c	71%	77%	75%	74%	71%	79% ^d	61%	81% ^e	77% ^e
Emotional or mental	61%	64%	59%	63%	59%	60%	64%	65%	58%	64%	61%	61%	61%	59%	63%	60%
Financial	52%	49%	54%	55% ^f	49%	51%	54%	50%	54%	62% ^d	50%	52%	53%	44%	42%	73% ^g
Time	39%	44%	36%	41%	36%	39%	39%	43%	36%	39%	39%	42% ^d	35%	41%	34%	44% ^h
Social	32%	41% ^d	27%	34%	29%	32%	30%	40% ^d	26%	36%	31%	34%	29%	36%	31%	29%
None of the above	3%	4%	3%	4%	2%	3%	3%	2%	4%	2%	3%	3%	4%	7%	3%	0%



^a*P*=.024 compared with < 65 years; ^b*P*=.043 compared with treated by a specialist; ^c*P*=.035 compared with male; ^d*P*<.01 within subcategory; ^e*P*<.01 compared with easy/very easy; ^f*P*=.021 compared with not treated by a specialist; ^g*P*<.01 compared with easy/very easy and neutral; ^h*P* <.01 compared with neutral
MM=multiple myeloma



Supplementary Figure 3. Patient satisfaction with treatment discussions

Patients were asked whether their healthcare team spent enough time discussing the following topics when their most recent MM treatment was being decided. The figure indicates the percentage of patients who wish their HCPs had spent more time on the topic

	Total	US	Ex-US	Japan	EU5	France	Germany	Italy	Spain	UK
N	1301	305	996	126	870	256	207	162	115	130
Side effects and safety risks identified in clinical trials	42%	38%	43%	42%	43%	44%	45%	43%	35%	46%
Impact of treatment on my mental health or emotional wellbeing	42%	42%	42%	48%	41%	42%	38%	50%	33%	39%
How treatment choices today may impact which options will be available to me if this treatment does not work as well as hoped for	41%	39%	42%	36%	43%	39%	43%	47%	40%	48%
How to manage costs outside of the treatment itself, such as travel costs, missed work, etc	41%	40%	42%	47%	41%	44%	39%	38%	39%	43%
Possible ways treatment side effects might affect my everyday life and activities	41% ^a	32%	44% ^b	51% ^c	43%	42%	44%	44%	41%	43%
How to afford treatment	41%	41%	41%	40%	41%	41%	44%	43%	31%	
Ongoing clinical trials I may be eligible for	39%	43%	38%	35%	39%	41%	32%	48%	36%	39%
Available resources to help with any logistical challenges of treatment	39%	41%	38%	36%	39%	37%	40%	49%	31%	34%
Importance of quickly identifying side effects from my treatment and taking appropriate action	39%	37%	39%	42%	39%	38%	43%	46%	31%	33%
What I may need after treatment (including any additional care needed)	39%	38%	39%	44%	38%	38%	37%	41%	30%	42%



^aP=.012 compared with US; ^bP=.014 compared with total and P=.013 compared with US; ^cP=0.12 with US
EU5=France, Germany, Italy, Spain, and UK; Ex-US=excluding US; HCP=healthcare provider; MM=multiple myeloma



Supplementary Figure 4. HCP recollection of treatment discussions

Patients were asked which topics they learned about from their healthcare team when their most recent MM treatment was being decided. HCPs were asked how often they discussed the following topics with their patients with relapsed, refractory MM in the context of treatment decisions. The HCP data indicates the percentage of HCPs that frequently/always discuss the topic

	Total		US		Ex-US		Japan		EU5	
	Patient	HCP	Patient	HCP	Patient	HCP	Patient	HCP	Patient	HCP
N	1301	983	305	251	996	732	126	152	870	1301
Side effects and safety risks identified in clinical trials	71%	69%	70%	70%	71%	69%	71% ^a	56%	71%	72%
Clinical data describing how well a treatment has worked for other patients	64% ^b	62%	64%	61%	65%	62%	65%	56%	65%	64%
Ongoing clinical trials I may be eligible for	64% ^b	48%	65% ^b	49%	63%	47%	60% ^b	40%	64% ^b	49%
How treatment choices today may impact future treatment options	60%	53%	58%	59%	60%	51%	71% ^b	47%	59% ^b	52%
Possible ways treatment side effects might affect everyday life / activities	56%	63% ^b	55%	64% ^c	57%	62% ^d	67%	58%	55%	64% ^b
Importance of quickly identifying treatment. side effects and taking action	56%	70% ^b	56%	69% ^b	56%	71% ^b	63%	64%	55%	73% ^b
Impact of treatment on my mental health or emotional wellbeing	55%	53%	57%	56%	54%	52%	60% ^e	45%	53%	53%
What I may need after treatment (including any additional care needed)	54%	58%	49%	61% ^b	56%	57%	66% ^b	46%	54%	60% ^f
Importance of lifestyle changes alongside my treatment: diet or exercise	51%	55% ^g	48%	56%	52%	55%	50%	47%	52%	57%
Time I would need to spend in the hospital or doctor's office for treatment	46%	56% ^b	44%	55% ^b	47%	56% ^b	46%	53%	47%	57% ^b
How to manage costs outside of treatment, such as travel costs, missed work	37%	35%	41%	45%	36%	32%	40%	36%	36%	31%
Challenges my carer/family might face and support they require	37%	52% ^b	37%	55% ^b	37%	51% ^b	44%	49%	36%	52% ^b
Available resources for treatment's logistical challenges	37%	45% ^b	36%	47% ^b	37%	45% ^b	48%	39%	36%	46% ^b
Availability of support/patient advocacy groups, or other connections	36%	42% ^b	37%	44%	36%	41% ^h	31%	43% ⁱ	36%	41%
How to afford treatment (US only)	-	-	42%	54% ^b	-	-	-	-	-	-



^aP=.012 compared with HCP; ^bP<.01 within subcategory; ^cP=.047 compared with patient; ^dP=.014 compared with patient; ^eP=.010 compared with HCP; ^fP=.036 compared with patient; ^gP=.034 compared with patient; ^hP=.018 compared with patient; ⁱP=.043 compared with patient
EU5=France, Germany, Italy, Spain, and United Kingdom; Ex-US=excluding US; HCP=healthcare provider; MM=multiple myeloma