SUPPLEMENTARY FILE

Identification and selection of mapping algorithms

In order to be eligible for our review, mapping studies had to be conducted in a population of adults who have a long-term medical condition which is stable regardless of treatment. Studies that included cancer, medical conditions reliant on fatigue for diagnosis (e.g., fibromyalgia, myalgic encephalomyelitis or chronic fatigue syndrome), medical conditions arising from infection (e.g., long COVID or post-viral illness) or injuries were excluded from the review as in the clinical effectiveness study. Studies that report mapping algorithms from disease-specific instruments, where fatigue was reported only as one of the domains, were not considered to be useful as data on the other domains would be unlikely to be available across the broad range of studies included in the NMA. The searches were performed in four electronic databases (MEDLINE, PubMed, Web of Science and the Cumulative Index to Nursing and Allied Health Literature [CINAHL]) between April 2024 and June 2024. The search strategies (described below) were based on a published systematic review of mapping studies and these were adapted to include a fatigue term. We also searched the Health Economic Research Center (HERC) database (version 9.0, last updated on the 1st of December 2023)[1] which is a database of mapping algorithms for calculating EQ-5D from other generic or disease-specific HRQoL instruments. The database is informed by a systematic review of mapping studies which is regularly updated.[2] In addition, we hand-searched the citations and reference lists of relevant papers in PubMed and Google Scholar to identify any further papers which discussed mapping algorithms to convert fatigue-specific measurements to EQ-5D or SF-6D.

Electronic database search strategies for mapping studies

Ovid MEDLINE(R) Epub Ahead of Print and In-Process, In-Data-Review & Other Non-Indexed Citations and Daily

22nd April 2024

#	Searches	Results
1	preference based.tw.	1814
2	(multiattribut or multi attribute or mau or maui).tw.	2460
3	(euroqol or euro qol or eq5d or eq 5d).tw.	17955
4	(sf 6d or sf6d or short form 6d or shortform 6d or sf six or sfsix or shortform six or short form six).tw.	1079
5	health utilities index.tw.	814
6	(quality adj2 (wellbeing or well being)).tw.	3120
7	qwb.tw.	219
8	(assessment adj2 quality adj2 life instrument).tw.	25
9	"aqol*".tw.	320
10	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9	25717
11	(mapping* or mapped or map).tw.	443444
12	(crosswalk* or cross walk*).tw.	842

13	(estimat* or predicted or predicting or prediction or transfer or transformation or derive or derived or deriving or derivation).ti.	582141
14	11 or 12 or 13	1014667
15	"fatigue*".ti.	34927
16	10 and 14 and 15	5

Web of Science: Clarivate Analytics
7th June 2024

#	**Searches**	**Results**
#1	TS=("preference based")	5850
#2	TS=(multiattribut or "multi attribute" or mau or maui)	22298
#3	TS=(euroqol or "euro qol" or eq5d or eq 5d)	26492
#4	TS=("sf 6d" or sf6d or "short form 6d" or "shortform 6d" or "sf six" or sfsix or "shortform six" or "short form six")	1659
#5	TS=("health utilities index")	1133
#6	TS= ((quality NEAR/2 wellbeing)) OR TS= ((quality NEAR/2 well being))	8715
#7	TS= (qwb)	304
#8	TS= ((assessment NEAR/2 quality NEAR/2 life instrument))	2857
#9	TS= (aqol*)	494
#10	TS=((15d or "15dimensional" or "15 dimensional"))	9018
#11	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10	74943
#12	TS=((mapping* or mapped or map))	3635581
#13	TS=((crosswalk* or cross walk*))	59397
#14	TI=(estimat* or predicted or predicting or prediction or transfer or transformation or derive or derived or deriving or derivation)	4509013
#15	#12 OR #13 OR #14	8050668
#16	TS=(fatigue*)	996729
#17	#11 AND #15 AND #16	83

Cumulative Index to Nursing and Allied Health Literature (CINAHL): EBSCO
7th June 2024

#	**Searches**	**Results**
S1	TI preference based OR AB preference based	3,572
S2	TI ((multiattribut or multi attribute or mau or maui)) OR AB ((multiattribut or multi attribute or mau or maui))	668
S3	TI (euroqol or euro qol or eq5d or eq 5d) OR AB (euroqol or euro qol or eq5d or eq 5d)	2,840
S4	TI (sf 6d or sf6d or short form 6d or shortform 6d or sf six or sfsix or shortform six or short form six) OR AB (sf 6d or sf6d or short form 6d or shortform 6d or sf six or sfsix or shortform six or short form six)	558
S5	TI health utilities index OR AB health utilities index	539
S6	TI (quality N2 (wellbeing or well being)) OR AB (quality N2 (wellbeing or well being))	2,426
S7	TI qwb OR AB qwb	96
S8	TI assessment N2 quality N2 life instrument OR AB assessment N2 quality N2 life instrument	141
S9	TI aqol OR AB aqol	90
S10	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9	10,359
S11	TI (mapping* or mapped or map) OR AB (mapping* or mapped or map)	57,752
S12	TI (crosswalk* or cross walk*) OR AB (crosswalk* or cross walk*)	790

S13	TI (estimat* or predicted or predicting or prediction or transfer or transformation or derive or derived or deriving or derivation)	121,021
S14	S11 OR S12 OR S13	177,984
S15	TI fatigue*	17,031
S16	S10 AND S14 AND S15	2

PubMed
7th June 2024

#	**Searches**	**Results**
#1	preference based[Title/Abstract]	1,943
#2	multiattribut or multi attribute or mau or maui[Title/Abstract]	15,921
#3	euroqol or euro qol or eq5d or eq 5d [Title/Abstract]	19,647
#4	sf 6d or sf6d or short form 6d or shortform 6d or sf six or sfsix or shortform six or short form six [Title/Abstract]	7,746
#5	health utilities index [Title/Abstract]	831
#6	quality N2 (wellbeing[Title/Abstract] OR well being[Title/Abstract])	263
#7	qwb[Title/Abstract]	221
#8	assessment N2 quality N2 life instrument [Title/Abstract]	3
#9	aqol [Title/Abstract]	339
#10	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9	44,657
#11	mapping*[Title/Abstract] OR mapped[Title/Abstract] OR map[Title/Abstract]	470,822
#12	crosswalk*[Title/Abstract] OR cross walk*[Title/Abstract]	922
#13	estimat*[Title] OR predicted[Title] OR predicting[Title] OR prediction[Title] OR transfer[Title] OR transformation[Title] OR derive[Title] OR derived[Title] OR deriving[Title] OR derivation[Title]	742,840
#14	#11 OR #12 OR #13	1,199,929
#15	fatigue*[Title]	36,518
#16	#10 AND #14 AND #15	6

Table S 1 Summary of studies which mapped fatigue-specific HRQoL measures to generic non-preference-based measures

Study	Disease category	Quality of life measures for fatigue		Mapping models investigated	Regression equation
		From	To		
Goodwin *et al*. 2019[3]	Multiple sclerosis (MS)	Fatigue Severity Scale (FSS)	EQ-5D-3L* SF-6D MSIS-8D	OLS model† CLAD model‡	SF-6D estimate = 0.897–0.006*FSS total score MSIS-8D estimate = 1.084–0.008*FSS total score – 0.001*age – 0.024*gender [0 male, 1 female] If age and gender are not available: MSIS-8D estimate = 0.985–0.007*FSS total score
Eriksson *et al*. 2019[4]	Multiple sclerosis (MS)	VAS (0 to 10)	EQ-5D-3L	OLS model	Regression coefficients are provided for eighteen variables included when using the UK valuation set for EQ-5D (age, MS type, employment status, EDSS score as a categorical variable, Fatigue VAS, Cognition VAS, and two for categories of treatments received). The VAS fatigue measure has a coefficient of -0.024 (95%CI -0.026 to -0.023).
Bloem *et al*. 2021[5]	Idiopathic Pulmonary Sclerosis (IPF)	Checklist Individual Strength subscale fatigue (CIS-Fatigue)	EQ-5D -5L	Stepwise multiple regression models	EQ-5D-5L VAS = 80.700 – 0.529*CIS-Fatigue – 1.611*HADS-Anxiety – 5.440* Comorbidities + 0.339*TLCO %Pred EQ-5D-5L index value = 0.829 – 0.003*FQL-Exhausted – 0.032*mMRC – 0.011*HADS-Anxiety – 0.014*HADS-Depression + 0.003*TLCO%Pred
	Sarcoidosis	Fatigue Quality List (FQL)			EQ-5D-5L VAS = 98.672 – 0.815*CIS-Fatigue + 0.340*FQL-Pleasant – 1.387*HADS-Depression EQ-5D-5L index value = 0.986 – 0.002*FQL-Exhausted – 0.070*mMRC – 0.019*HADS-Anxiety

* The regression equation for EQ-5D-3L was not reported in the paper because of poor performance of EQ-5D algorithms.
† Best performing model for SF-6D.
‡ Best performing model for EQ-5D and MSIS-8D.
EQ-5D-3L ,EuroQoL 5 Dimensions-3 levels; EQ-5D-5L ,EuroQoL 5 Dimensions 5 levels; SF-6D,short-form 6 Dimensions, MSIS-8D,Multiple Sclerosis Impact Scale 8 Dimensions; EQ-5D-5L VAS ,EuroQoL 5 Dimensions 5 levels Visual Analog Scale ; VAS, Visual Analog Scale; HADS, Hospital Anxiety and Depression Scale ; TLCO%Pred, Transfer Factor of the lung for carbon monoxide percentage predicted ; mMRC, modified Medical Research Council-Dyspnoea; OLS, ordinary least squares; CLAD, Censored Least Adjusted Deviation

Detailed costing assumptions

Table S 2 Unit costs applied in the costing of interventions

Healthcare staff	Unit cost	Ratio of direct to indirect time	Cost per minute*	Source
Physiotherapist	41 per hour	1:0.37	£0.94	PSSRU 2023[6]
CBT	100 per 55-min session	NA	£2.15	PSSRU 2017,[7] uplifted to 2022/23 prices
Mindfulness-based cognitive therapy	175 per 2-hour session	NA	£1.72	PSSRU 2017,[7] uplifted to 2022/23 prices

* The qualification costs and cost per minute of face-to-face time were included, where available. Otherwise, the ratios of direct to indirect time were used to estimate the cost per minute of face-to-face time.
CBT, cognitive behavioural therapy; PSSRU, Personal Social Services Research Unit

Table S 3 Costs of physical activity promotion delivered to individuals

First author and year of publication	Session facilitator	Face to face (F) or distance (D)	Number of sessions	Duration of sessions (minutes)	Unit cost	Cost per patient
Bachmair 2022[8]	HCPs in RA departments by telephones; supervised by exercise therapists	D	5*	45	Physiotherapist	£267.15
Turner 2016[9]	Tele-counselling conducted by the study therapists	D	5	45†	Physiotherapist	£294.89
			1	90		
Katz 2018[10]	NR	D	10	NR	NE	NE
Kucharski 2019[11]	Physiotherapist	mixed	1	NR	Physiotherapist	NE
Torkhani 2021[12]	15 min phone call by a specialised trainer in adapted physical activity	mixed	8	15	Physiotherapist	£112.34

*median 5 session was used.
† A session can last between 30 to 60 minutes.
HCP, health care professional; RA, rheumatoid arthritis; NR, not reported; NE, not estimable

Table S 4 Costs of CBT-Fatigue delivered to individuals

First author and year of publication	Session facilitator	Face to face (F) or distance (D)	Number of sessions	Duration of sessions (minutes)	Unit cost	Cost per patient
Mead 2022[13]	Non-psychology health care professionals (nurses and physiotherapists)	D	7	60	CBT	£902.68
Ehde 2015[14]	Master-level social workers or doctoral-level psychologist	D	8	60	CBT	£1,096.12
			2	15	CBT	
Artom 2019[15]	Therapist	D	1	60	CBT	£580.30
			7	30		
Nguyen 2019[16]	Three psychologists with doctoral qualifications in clinical neuropsychology and advanced training in CBT	F	9	NR	CBT	NE
Menting 2017[17]	Therapist	mixed	5.4	50	CBT	£580.30
Moss-Morris 2012[18]	Internet-based intervention and assistant psychologist	D	3	45*	CBT	£290.15
Picariello 2021[19]	Psychologists	mixed	2	60	CBT	£451.34
			3	30		
Jhamb 2023[20]	CBT therapists	D	12	52.5†	CBT	£1,354.03
van den Akker 2017[21]	Psychologist (CBT Therapist)	F	12.00	45	CBT	£1,160.59
van Kessel 2008[22]	Clinical psychologist	mixed	8.00	50	CBT	£859.70
Okkersen 2018[23]	Therapists	mixed	12.00	NR	CBT	NE
Pottgen 2018[24]	Internet-based intervention	D	8.00	60	Unclear	NE
Bachmair 2022[8]	HCPs in RA departments by telephones; supervised by CBT/clinical psychologists	D	8	45	CBT	£773.73

*A telephone session can last between 30 to 60 minutes.

†A session can last between 45 to 60 minutes.

CBT, cognitive behavioural therapy; HCP, health care professional; RA, rheumatoid arthritis; NR, not reported; NE, not estimable

Table S 5 Costs of mindfulness delivered to individuals

First author and year of publication	Session facilitator	Face to face (F) or distance (D)	Number of sessions	Duration of sessions (minutes)	Unit cost	Cost per patient
Goren 2022[25]	Clinical social workers with a special training in CBT and mindfulness-based stress reduction	D	7	60	Mindfulness-based cognitive therapy	£724.03
Torkhani 2021[12]	15 min phone call by a specialised trainer in adapted physical activity	D	8	15	Mindfulness-based cognitive therapy	£206.87

CBT, cognitive behavioural therapy

Table S 6 Costs of physical activity promotion delivered to groups

First author and year of publication	Session facilitator	Face to face (F) or distance (D)	Number of sessions	Duration of sessions (minutes)	Total individuals started	Number of groups	Unit cost	Cost per patient
Lutz 2017[26]	Sport scientist (2 staff members per group)	F	12	75*	8	1	Physiotherapist	£210.64
Callahan 2014[27]	17 instructors for 17 centres (assumed 1 instructor per group)	F	20	60	172	17	Physiotherapist	£102.13

*A session can last between 60 to 90 minutes.

Table S 7 Costs of CBT-Fatigue delivered to groups

First author and year of publication	Session facilitator	Face to face (F) or distance (D)	Number of sessions	Duration of sessions (minutes)	Total individuals started	Number of groups	Average number of persons per group	Unit cost	Cost per patient
Zedlitz 2012[28]	Psychologists for CBT	F	12	120	45	12	4	CBT	£773.73
Gay 2023[29]	FACETS+ programme delivered by 2 psychologists	F	10	90	-	1	8*	CBT	£483.58
Hewlett 2019[30]	Rheumatology nurses and occupational therapists	F	6	120	-	-	6	CBT	£558.80
			1	60					
Bredero 2023[31]	Mindfulness trainer	F	8	150	47	3	16	CBT	£378.63
			1	180					
Thomas 2013[32]	Two health professionals (occupational therapists/MS specialist nurses/physio-therapists)	F	6	90	-	-	9†	CBT	£257.91

*6 to 10 persons per group
†6 to 12 persons per group
CBT, cognitive behavioural therapy; MS, multiple sclerosis

Table S 8 Costs of mindfulness delivered to groups

First author and year of publication	Session facilitator	Face to face (F) or distance (D)	Number of sessions	Duration of sessions (minutes)	Total individuals started	Number of groups	Average number of persons per group	Unit cost	Cost per patient
Grossman 2010[33]	2 experienced certified teachers with > 9 years of teaching experience.	F	8	150	-	-	13*	Mindfulness-based cognitive therapy	£214.82
			1	420	-	-			

*10 to 15 persons per group

Calculation of baseline fatigue score and standard deviation (FSS) for scenario analysis

The network meta-analysis (NMA) presented elsewhere on the effect of non-pharmacological interventions for fatigue management used standardised mean difference of change of fatigue from baseline in order to manage the use of different fatigue scales. Studies which measured fatigue outcomes using the FSS score within the base case end of treatment network were used to evaluate the baseline FSS score. Baseline scores were pooled across all arms under the assumption that baseline fatigue should not significantly differ between study arms conditional on proper randomisation.

Forty study arms had baseline fatigue measured using FSS. Some studies were found to report a non-averaged FSS, and therefore were not included within the evaluation of the representative baseline FSS. The average baseline FSS score and the corresponding groups were evaluated using the formulae in Section 6.5.2.10 in the Cochrane Handbook for combining summary statistics across groups.[34]

The pooled baseline FSS score was 5.35 with a standard deviation (SD) of 1.16. As this was the average score across 9 domains, and the economic model uses total FSS score with its SD, these were scaled up by a factor of 9 for inclusion in the economic model.

NMA scenario analysis, LT data follow-up time

For studies that reported fatigue scores for two different long-term follow-ups, the base-case NMA included the longest follow-up data but a sensitivity analysis was conducted incorporating the earliest long-term follow-up point (i.e. closest to 3 months after EOT). Only 5 studies out of 18 studies including within the long-term NMA had more than one follow-up greater than 3 months. For studies without alternative data, the original data (as in the base case) was used.

The detailed methodology of the NMA, and included studies is included elsewhere.[35] For comparison, the predicted treatment effect point estimates for the interventions considered within the economic modelling, and their corresponding 95% credible intervals for the base case and the scenario analysis are compared in Table S9. Note that CBT-Fatigue is considered as a combination of both group and individual interventions.

Table S 9 Comparison of base case predicted treatment effects for three interventions within the economic model with the predicted treatment effects when using long-term follow-up data closest to 3 months, as opposed to maximum available follow-up

Predicted treatment effect from NMA (LT)		
Intervention	Base case point, estimate (95% CrI) [Number of studies]	Use of maximum follow-up within LT, point estimate (95% CrI) [Number of studies]
Mindfulness based	-0.54 (-0.99, -0.105) [1]	-0.54 (-1.056, -0.035) [1]
Physical activity promotion	-0.52 (-0.862, -0.184) [2]	-0.53 (-0.928, -0.125) [2]
CBT-Fatigue	-0.4 (-0.627, -0.214) [9]	-0.42 (-0.684, -0.196) [9]

CrI, credible interval; NMA, network meta-analysis; LT, long-term; CBT-Fatigue, cognitive behavioural therapy for fatigue

Generally there was minimal difference in the point estimates of the predicted treatment effects. However, there was some broadening of the 95% credible intervals (CrIs) , likely due to the broader range of follow-up times included within the scenario analysis. Despite this, the three interventions remained statistically significant.

Comparison of clinical effectiveness for CBT for fatigue in group versus individual delivery setting

Within the clinical effectiveness comparisons, published elsewhere, data was recorded whether interventions were administered in a group or individual setting. For CBT-Fatigue, multiple studies at ST and LT were recorded to have used group and individual based interventions. Therefore, the comparative efficacy of CBT-Fatigue (group) and CBT-Fatigue (individual) could be assessed in a scenario analysis at EOT, ST, and LT follow-up.

The detailed methodology of the network meta-analyses is published elsewhere. Here, the predicted treatment effect point estimate and associated 95% CrIs are presented for CBT-Fatigue (group), CBT-Fatigue (individual) and pooled CBT-Fatigue (from the base case) for each follow-up analysis. Other intervention treatment effects are not included, but there was minimal impact on the predicted treatments effects for other interventions.

Table S 10 Comparison of CBT-Fatigue (group), CBT-Fatigue (individual) and CBT-Fatigue (pooled) predicted treatment effects at EOT, ST and LT

Predicted treatment effect for CBT-Fatigue (group) vs (individual)			
Intervention	EOT Point estimate (95% CrI) [Number of studies]	ST Point estimate (95% CrI) [Number of studies]	LT Point estimate (95% CrI) [Number of studies]
CBT-Fatigue (group)	-0.60 (-1.00, -0.192) [4]	-0.06 (-0.486, 0.371) [1]	-0.38 (-0.679, -0.128) [4]
CBT-Fatigue (individual)	-0.64 (-0.898, -0.395) [13]	-0.23 (-0.57, 0.071) [6]	-0.47 (-0.93, -0.046) [5]
CBT-Fatigue (pooled)	-0.63 (-0.865, -0.402) [17]	-0.17 (-0.415, 0.062) [7]	-0.4 (-0.627, -0.214) [9]

CrI, credible interval; NMA, network meta-analysis; EOT, end of treatment; ST, short-term; LT, long-term; CBT-Fatigue, cognitive behavioural therapy for fatigue

Noticeably, there were fewer studies influencing CBT-Fatigue nodes within the NMA at ST compared to EOT and LT, corresponding predicted treatment effects were all reduced and found not to be statistically significant. At both EOT and ST there were more studies implementing individual CBT-Fatigue, as opposed to group-based interventions. The 95% credible intervals of group and individual interventions overlapped at all follow-up times, suggesting no meaningful differences in predicted treatment effects. However, there were moderate differences in the ST estimates, with CBT-Fatigue in a group setting being shown to be potentially less beneficial than in the individual setting, however this was evidenced by a single study only, and this was not subsequently evident at LT follow-up.

Table S 11 Input parameters for the base case analysis

Parameter	Value	Standard error (SE)	Distribution	Source
SMD of interventions (clinical effectiveness), EOT network				
Usual care	0.00	-	Fixed	Systematic review and NMA[35]
Physical activity promotion	-0.32	-	CODA	
CBT-Fatigue-I	-0.63	-	CODA	
CBT-Fatigue-G	-0.63	-	CODA	
Mindfulness	-0.59	-	CODA	
SMD of interventions (clinical effectiveness), ST network				
Usual care	0.00	-	Fixed	Systematic review and NMA[35]
Physical activity promotion	-0.51	-	CODA	
CBT-Fatigue-I	-0.17	-	CODA	
CBT-Fatigue-G	-0.17	-	CODA	
Mindfulness	-	-		
SMD of interventions (clinical effectiveness), LT network				
Usual care	0.00	-	Fixed	Systematic review and NMA[35]
Physical activity promotion	-0.52	-	CODA	
CBT-Fatigue-I	-0.40	-	CODA	
CBT-Fatigue-G	-0.40	-	CODA	
Mindfulness	-0.54	-	CODA	
Expected costs per patient (individual interventions)				
Usual care	£0	-	Fixed	Assumption
Physical activity promotion	£267	46.57	Gamma	Systematic review and NMA[35]
CBT-Fatigue-I	£817	271.40	Gamma	
Mindfulness	£465	131.93	Gamma	
Expected costs per patient (group intervention)				
CBT-Fatigue-G	£484	131.587	Gamma	Systematic review and NMA[35]
Physical activity promotion	£156	27.681	Gamma	
Mindfulness	£215	53.705	Gamma	
Mapping parameters				
Baseline FSS scores	43.73	15.10	Normal	Goodwin *et al*.2019[3]
Mapping coefficient_constant	0.8970	0.015	Normal	
Mapping coefficient_ FSS	0.006000	0.0003	Normal	
Average timepoints (months)				
Baseline to EOT				
Usual care	3.26	-	Fixed	NMA[35]
Physical activity promotion	4.04	-	Fixed	
CBT-Fatigue-I	3.07	-	Fixed	
CBT-Fatigue-G	3.07	-	Fixed	
Mindfulness	2.23	-	Fixed	

EOT to ST				
Usual care	2.23	-	Fixed	NMA[35]
Physical activity promotion	1.38	-	Fixed	
CBT-Fatigue-I	1.91	-	Fixed	
CBT-Fatigue-G	1.91	-	Fixed	
Mindfulness	0.00	-	Fixed	
ST to LT				
Usual care	5.85	-	Fixed	NMA[35]
Physical activity promotion	8.53	-	Fixed	
CBT-Fatigue-I	6.45	-	Fixed	
CBT-Fatigue-G	6.45	-	Fixed	
Mindfulness	6.00	-	Fixed	
LT to final end points				
Usual care	12.66	-	Fixed	NMA[35]
Physical activity promotion	10.05	-	Fixed	
CBT-Fatigue-I	12.58	-	Fixed	
CBT-Fatigue-G	12.58	-	Fixed	
Mindfulness	15.77	-	Fixed	

SMD, standardised mean difference; EOT, end of treatment; ST, short-term; LT, long-term; CBT-Fatigue-I, cognitive behavioural therapy for fatigue (individual); CBT-Fatigue-G, cognitive behavioural therapy for fatigue (group); FSS, fatigue severity score; CODA, Convergence Diagnostic and Output Analysis; NMA, network meta-analysis

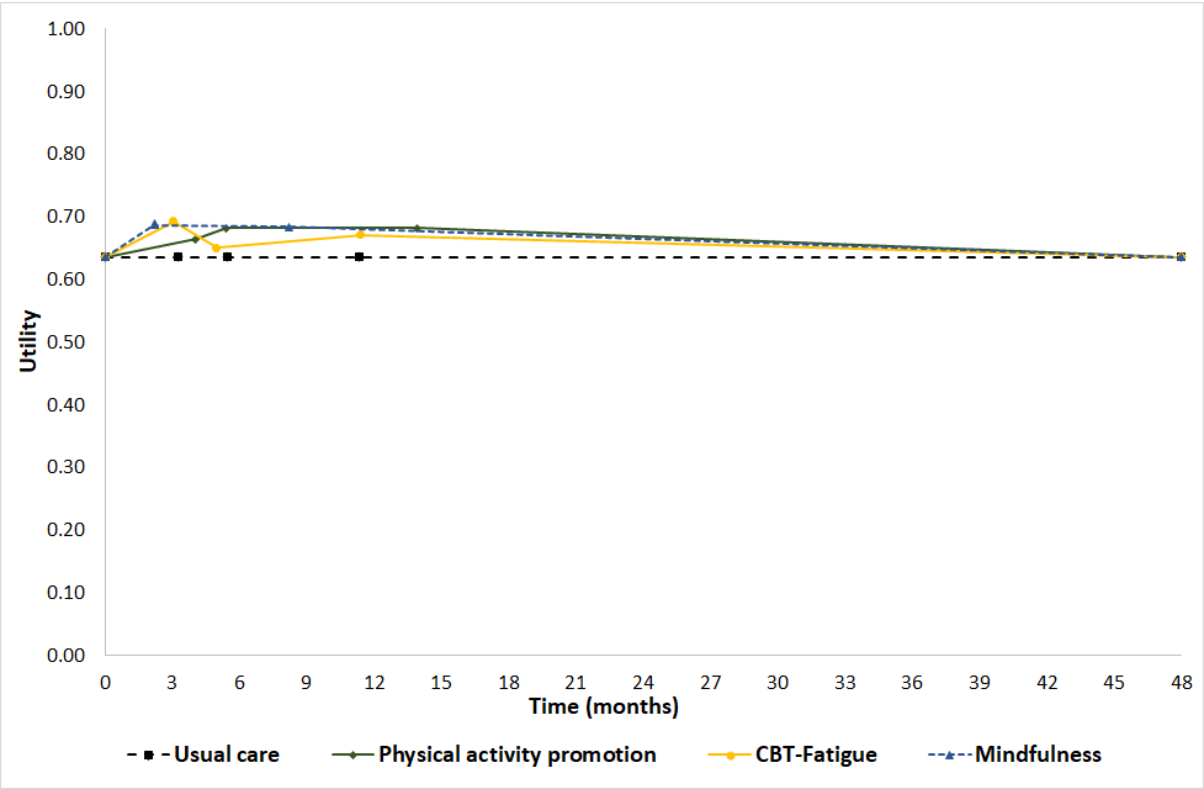

Figure S 1 Utility values of interventions across different timepoints (optimistic scenario)

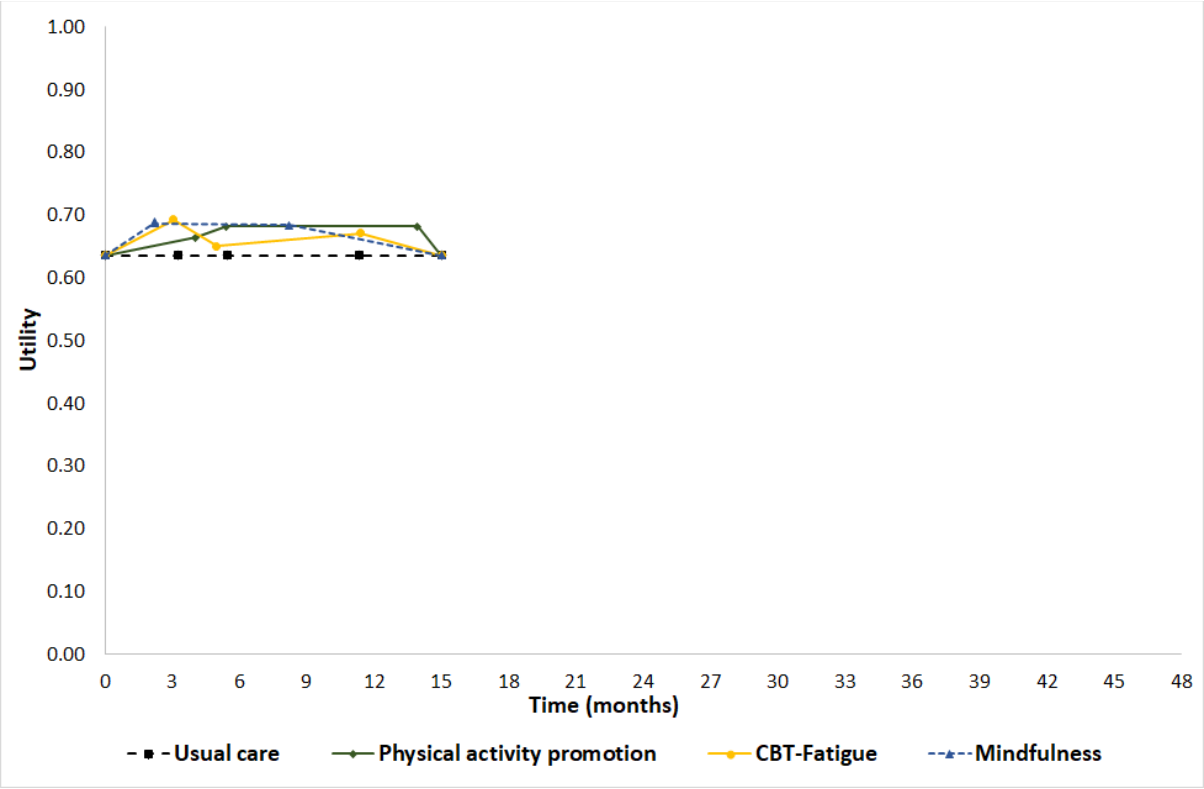

Figure S 2 Utility values of interventions across different timepoints (pessimistic scenario)

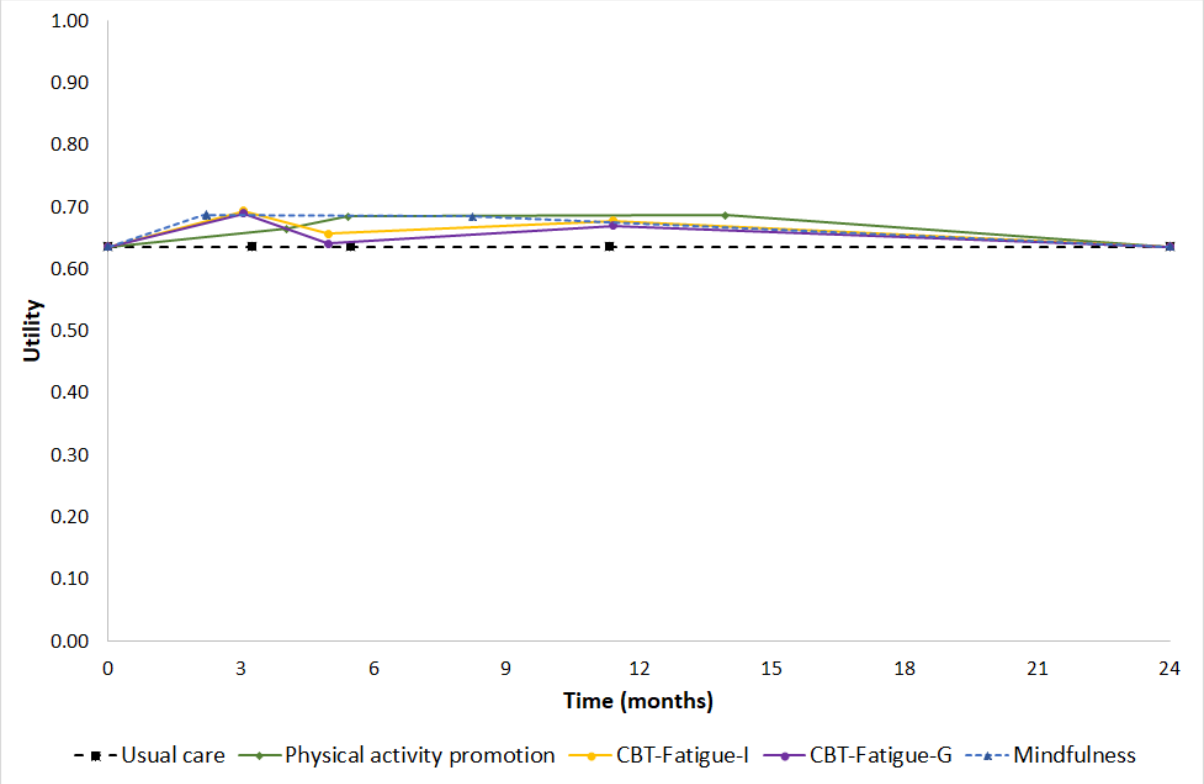

Figure S 3 Utility values of interventions across different timepoints (using results from NMA scenario analysis 1 comparing individual vs group CBT-Fatigue)

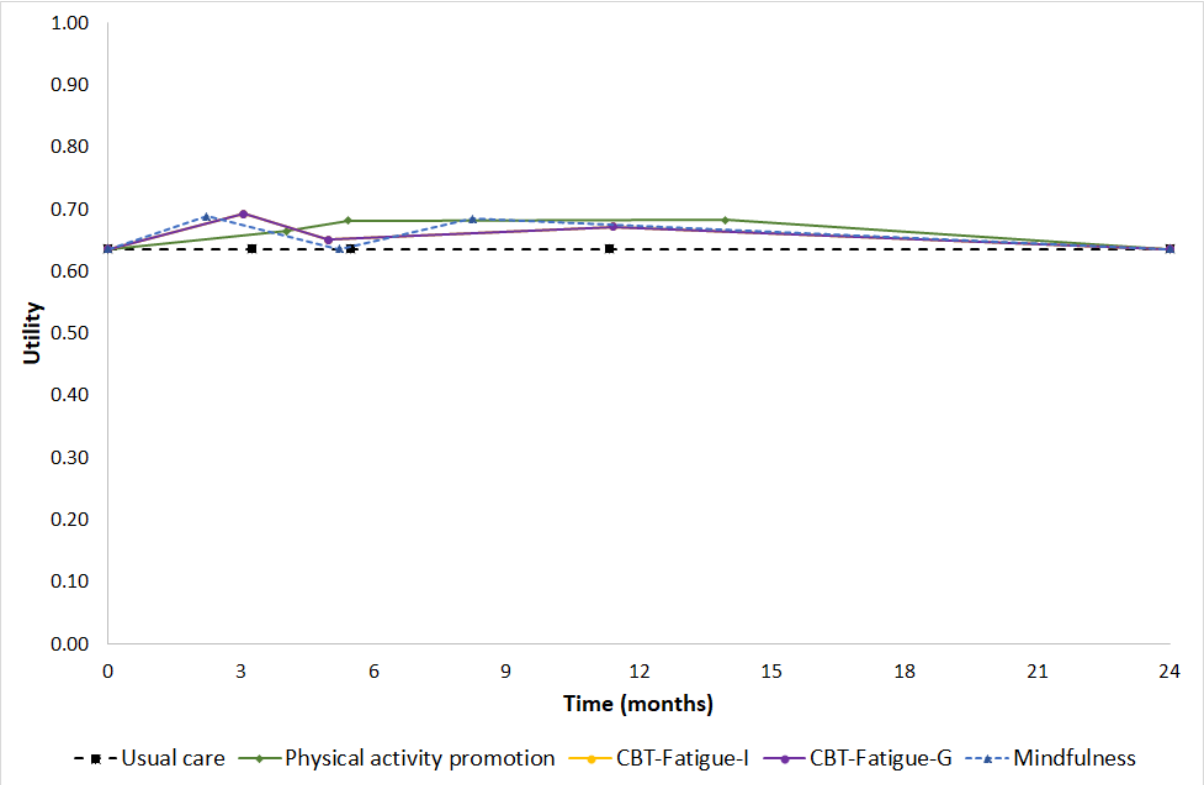

Figure S 4 Utility values of interventions across different timepoints (removal of the linear change assumption for mindfulness at the short-term follow-up timepoint)

Table S 12 Results of scenario analyses (probabilistic)

Intervention type	Group or individual intervention	Median cost (£)	Mean QALYs (discounted)	Incremental Costs	Incremental QALYs	NMB at £20,000 threshold	INMB against UC
Using optimistic assumption for the duration of treatment effect decline (48 months from the baseline)							
Usual care	-	£0	2.364	-	-	£47,286	-
Physical activity promotion	Individual	£267	2.467	£267	0.103	£49,079	£1,793
CBT-Fatigue	Individual	£810	2.443	£810	0.078	£48,043	£758
Mindfulness	Individual	£462	2.470	£462	0.106	£48,943	£1,658
Physical activity promotion	Group	£157	2.467	£157	0.103	£49,190	£1,904
CBT-Fatigue	Group	£485	2.443	£485	0.078	£48,369	£1,083
Mindfulness	Group	£214	2.470	£214	0.106	£49,191	£1,905
Using pessimistic assumption for the duration of treatment effect decline (15 months from the baseline)							
Usual care	-	£0	0.774	-	-	£15,482	-
Physical activity promotion	Individual	£267	0.817	£267	0.043	£16,079	£598
CBT-Fatigue	Individual	£810	0.806	£810	0.032	£15,310	-£172
Mindfulness	Individual	£462	0.818	£462	0.043	£15,889	£407
Physical activity promotion	Group	£157	0.817	£157	0.043	£16,190	£709
CBT-Fatigue	Group	£485	0.806	£485	0.032	£15,636	£154
Mindfulness	Group	£214	0.818	£214	0.043	£16,137	£655
Using baseline FSS score and SE from EOT NMA network							
Usual care	-	£0	1.172	-	-	£23,447	-
Physical activity promotion	Individual	£267	1.214	£267	0.042	£24,013	£566
CBT-Fatigue	Individual	£810	1.204	£810	0.031	£23,261	-£186
Mindfulness	Individual	£462	1.215	£462	0.042	£23,832	£385
Physical activity promotion	Group	£157	1.214	£157	0.042	£24,124	£677
CBT-Fatigue	Group	£485	1.204	£485	0.031	£23,587	£139
Mindfulness	Group	£214	1.215	£214	0.042	£24,080	£633
Using different SMDs between individual and group CBT-Fatigue interventions							
Usual care	-	£0	1.223	-	-	£24,467	-
Physical activity promotion	Individual	£267	1.287	£267	0.064	£25,472	£1,005
CBT-Fatigue	Individual	£810	1.275	£810	0.052	£24,696	£229
Mindfulness	Individual	£462	1.284	£462	0.060	£25,212	£745

Intervention type	Group or individual intervention	Median cost (£)	Mean QALYs (discounted)	Incremental Costs	Incremental QALYs	NMB at £20,000 threshold	INMB against UC
Physical activity promotion	Group	£157	1.287	£157	0.064	£25,583	£1,116
CBT-Fatigue	Group	£485	1.263	£485	0.040	£24,773	£306
Mindfulness	Group	£214	1.284	£214	0.060	£25,460	£993
Using alternative SMDs using the shorter follow-up point in the LT NMA network							
Usual care	-	£0	1.224	-	-	£24,474	-
Physical activity promotion	Individual	£267	1.284	£267	0.060	£25,406	£932
CBT-Fatigue	Individual	£810	1.270	£810	0.046	£24,584	£110
Mindfulness	Individual	£462	1.285	£462	0.061	£25,228	£754
Physical activity promotion	Group	£157	1.284	£157	0.060	£25,517	£1,043
CBT-Fatigue	Group	£485	1.270	£485	0.046	£24,909	£435
Mindfulness	Group	£214	1.285	£214	0.061	£25,476	£1,002
Assuming the SMD of mindfulness at the ST follow-up timepoint is zero							
Usual care	-	£0	1.224	-	-	£24,471	-
Physical activity promotion	Individual	£267	1.284	£267	0.060	£25,404	£934
CBT-Fatigue	Individual	£810	1.269	£810	0.045	£24,560	£90
Mindfulness	Individual	£462	1.272	£462	0.049	£24,985	£514
Physical activity promotion	Group	£157	1.284	£157	0.060	£25,515	£1,044
CBT-Fatigue	Group	£485	1.269	£485	0.045	£24,886	£415
Mindfulness	Group	£214	1.272	£214	0.049	£25,233	£762
Using the lowest cost of intervention across studies							
Usual care	-	£0	1.225	-	-	£24,492	-
Physical activity promotion	Individual	£113	1.285	£113	0.060	£25,578	£1,085
CBT-Fatigue	Individual	£285	1.270	£285	0.045	£25,106	£613
Mindfulness	Individual	£203	1.286	£203	0.061	£25,507	£1,015
Physical activity promotion	Group	£102	1.285	£102	0.060	£25,588	£1,096
CBT-Fatigue	Group	£259	1.270	£259	0.045	£25,131	£639
Mindfulness	Group	£161	1.286	£161	0.061	£25,550	£1,058
Using the highest cost of intervention across studies							
Usual care	-	£0	1.223	-	-	£24,464	-
Physical activity promotion	Individual	£295	1.283	£295	0.060	£25,371	£906
CBT-Fatigue	Individual	£1,348	1.268	£1,348	0.045	£24,017	-£447

Intervention type	Group or individual intervention	Median cost (£)	Mean QALYs (discounted)	Incremental Costs	Incremental QALYs	NMB at £20,000 threshold	INMB against UC
Mindfulness	Individual	£721	1.284	£721	0.061	£24,965	£501
Physical activity promotion	Group	£211	1.283	£211	0.060	£25,455	£991
CBT-Fatigue	Group	£775	1.268	£775	0.045	£24,590	£125
Mindfulness	Group	£268	1.284	£268	0.061	£25,418	£953

QALY, quality-adjusted life years; NMB, net monetary benefit; INMB, incremental net monetary benefit; UC, usual care; CBT, cognitive behavioural therapy; EOT: end-of-treatment; LT, long-term; NMA, network meta-analysis; FSS, fatigue severity score; SE, standard error; SMD, standardised mean difference

Original protocol of the study

The original protocol of the EIFFEL study is reported here:
https://www.fundingawards.nihr.ac.uk/award/NIHR154660

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