Supplementary File 4: Table of Treatment and Outcomes

	Intervention	**Length of treatment**	**Treatment Fidelity/ manualised?**	**Home practice**	**Main Mental Health Outcomes**	**Main Physical Health Outcomes**
Bussone et al. (1988)	1.Biofeedback and progressive muscle relaxation involving: - Progressive muscle relaxation training - EMG Biofeedback: baseline, auditory feedback and self-control (feedback signal turned off, while subject was instructed to continue attempting to relax). 2. Relaxation placebo	7 hours	Manualised: Yes Treatment Fidelity independently rated: NR Supervision: NR	No home practice	Significantly greater reductions in the biofeedback group compared to the control group from pre-treatment to follow-up (post treatment, 3,6, and 12 month) in • trait anxiety** No significant difference between groups on state anxiety	Significantly greater reductions in the biofeedback group compared to the control group from baseline to follow-up (post treatment, 3,6, and 12 month) in • pain total index • EMG ratings (reduction of muscle tension).
Chalder, Deary, Husain & Walwyn, 2010	1.Family focussed CBT: - activity pacing - sleep routine	13 hours	Manualised: Yes Fidelity independently rated: No	Families given treatment manual and homework	Significantly greater reductions in the FFCBT group compared to the	There were no significant differences between groups on post-

***2012 Follow up study included**	- cognitive re-structuring - encouraging family members to communicate about the illness - relapse prevention. 2.Psycho-ed: dyadic teaching about CFS - pre-disposing and maintaining factors symptom management)		Treatment Fidelity monitored through supervision: Yes		control group from pre-treatment to 24 month follow-up on • emotional • behavioural and • relationship difficulties No significant differences between groups from post-treatment to follow-up (6 and 12 month) on depression scores. Depression scores not reported at 24 month follow-up.	treatment, 6, 12 or 24 month follow-up school attendance or fatigue scores.
Crawley et al. (2017)	1. Lightening Process (LP) plus Specialist Medical Care The Lightning Process consisted of • Small group sessions • Psychoeducation about stress response, mind-body interaction and unhelpful thought processes.	12 hours	Manualised: Yes Treatment Fidelity independently monitored: NR Treatment Fidelity monitored through supervision : NR	Yes	Significantly greater reductions in LP+SMC group compared with control group (SMC alone) from pre-treatment to 6 and 12 month follow-up in • anxiety scores on SCAS • anxiety scores on HADS	Significantly greater improvements in LP+SMC group compared with control group (SMC alone) from pre-treatment to 6 and 12 month follow-up in • physical function • fatigue score on CFS

	• Group discussion about the use of language. • Goals identification • Cognitive strategies The SMC was: • conducted various healthcare professionals including doctors, physiotherapists and occupational therapists. • Participants were seen by the different health care providers based on individual goals. 2. Specialist Medical Care (SMC) alone				Significantly greater reductions in LP+SMC group compared with control group (SMC alone) from pre-treatment to 12 month follow-up, but not at 6 month follow-up, in • depression scores on HADS	Significantly greater increase in LP+SMC group compared with control group (SMC alone) from pre-treatment to 12 month follow-up, but not at 6 month follow-up, in • school attendance
Griffiths et al. (1996)	1. Clinic, group based 2. Home, individual	12 hours	Manualised: Yes Treatment Fidelity		Between groups differences were not reported.	There was a significantly greater reduction in

	Protocol for both groups: • Education • progressive relaxation and breathing exercises • Cognitive skills I (monitoring positive and negative self-statements about headaches) • Cognitive skills II (generating positive self-statements to replace negative self-statements about exercises headaches) • Mental imagery • relapse management		independently rated: NR Supervision: NR		Statistically significant within groups improvements from baseline to post-treatment for • coping skills for the home and clinic treatment groups but not the control group Statistically significant within groups improvements from baseline to post-treatment for • anxiety for the clinic group, but not the home or the control groups Non-significant reduction in depression scores for the clinic group, but not the home or the control groups Psychological measures were not	• headache scores for groups 1 and 2 compared with group 3 from pre- to post-treatment. There were no significant differences between groups 1 and 2 on headache index scores. Non-significant within groups reduction for groups 1 and 2 but not the control group from baseline to post-treatment in • medication usage Between groups differences were not reported at follow-up (9weeks).

					collected at follow-up (9weeks).	
Hickman et al. 2015	1.COPE-HEP: • Thinking, feeling, behaving headache triggers • Self-esteem • Stress and coping • Problem solving Headache education • Headache triggers Headache management	3 hours	Manualised:Yes Treatment Fidelity independently rated: No Treatment Fidelity monitored through supervision: Yes		There were significant improvements in both groups from pre- to post- intervention in • anxiety scores**** • depression scores • coping beliefs Perceived stress scores were not significantly reduced in either group. No between groups differences were observed.	There was a significant reduction in headache disability for both groups*** No group differences were observed.
Kashikar-Zuck et al. (2005)	CBT (CST) • muscle relaxation techniques • activity pacing • cognitive techniques (negative thoughts/ mood difficulties) • problem-solving • sleep hygiene	6 hours	Manualised:Yes Treatment Fidelity independently monitored: No Treatment Fidelity monitored through supervision : Yes	Home practice was assigned for each of these techniques at the end of each training session.	Significant within subjects improvement in both groups from pre-to post-treatment for • depressive symptoms There were no significant differences between groups.	Significantly greater reduction in the CST compared with the SM group from pre- to post-treatment in • pain levels Significant within groups differences from pre-to post-intervention in

	• Parent training in behavioural management techniques (changing response to illness) 2. SM Self-monitoring headaches with diary				Non-significant greater reduction in the SM to CST group compared to the CST to SM group in • depressive symptoms from pre-treatment to follow-up (after cross-over)	• pain-coping efficacy No significant change in • tender point or • pressure-pain threshold. Non-significant greater reduction in the SM to CST group compared to the CST to SM group in • overall functional disability from pre-treatment to follow-up (after cross-over)
Kashikar-Zuck, Ting, Arnold, Bean, Powers, Graham, et al. (2012)	1.CBT • muscle relaxation techniques • activity pacing • cognitive techniques (negative	7 hours 30 minutes	Manualised:Yes Treatment Fidelity independently monitored: Yes Treatment Fidelity monitored	H/w for both groups on content of previous session	Significantly greater reduction in the CBT group compared with the FME group from pre- to post-treatment in • depression scores.	Significantly greater reduction in the CBT group compared with the FME group from pre- to post-treatment in • Functional disability

	thoughts/ mood difficulties) • problem-solving • sleep hygiene • Parent training in behavioural management techniques (changing response to illness) 2. FM Education • Information about medication Discussion of lifestyle issues (diet, sleep, exercise)		through supervision : NR		Treatment gains, were maintained at follow-up, however the between groups difference did not reach significance at 6 month follow-up.	Treatment gains were maintained at 6 month follow-up. Significant within groups reduction from baseline to follow-up in • pain severity No significant between group differences.
Law et al. (2015)	1. Internet WEB-MAP programme plus Specialist Headache Treatment (SHT). For the Internet WEB-MAP programme, adolescents completed online modules on • pain education • goal setting • relaxation training • distraction strategies	9 hours per family (4 hours for adolescents, 4 hours for parents, 1 hour online coach time)	Manualised: Yes Treatment Fidelity independently monitored: NR Treatment Fidelity monitored through supervision: Yes	Yes	No significant between group differences from pre to post-treatment or at 3 month follow-up for • depression • anxiety Significant within groups improvement from pre- to post-treatment and at 3 month follow-up for both groups in	No significant between group differences from pre to post-treatment or at 3 month follow-up on • headache frequency • headache intensity • activity limitation

	• cognitive strategies • sleep and lifestyle • relapse prevention Adolescents also had limited time with an online coach. Parents completed modules • pain education • goal setting • operant training communication strategies • modelling • cognitive strategies • sleep and lifestyle • relapse prevention For the Specialist Headache Treatment, participants received one or more of the following interventions as recommended by their providers at the headache clinic:				• depression	Significant within groups improvement from pre- to post-treatment for both groups in • headache frequency • headache intensity

	• medication management • psychological therapy (face-to-face cognitive behavioural therapy for pain management and/or biofeedback) • physical therapy 2. Specialist Headache Treatment alone					
Levy et al (2010)	1.SLCBT: • relaxation training • modification of family responses to illness and wellness behaviours • cognitive restructuring 2.Education (ES): • education about GI system anatomy and function • nutrition guidelines additional food-related information.	4 hours	Manualised:Yes Treatment Fidelity independently monitored: Yes Treatment Fidelity monitored through supervision: NR		Significantly greater improvement in the SLCBT group, compared with the ES group in • parent report depression scores • child report catastrophising (anxiety measure) from pre-treatment to follow-up (time points: post-treatment, 3 and 6 months) Treatment gains were maintained at follow-up, however the between groups difference was not significant at 3 and 6 month follow-up as	Significantly greater reduction in the SLCBT group, compared with the ES group in • parent report pain from pre-treatment to follow-up (time points: post-treatment, 3 and 6 months) Significantly greater improvement in the SLCBT group, compared with the ES group in parent report

					the ES group had also improved. Significantly greater improvement in the SLCBT group, compared with the ES group in parent report • Parental solicitousness (protectiveness in relation to pain) • Perceived pain threat • Problem focussed coping • Emotion focussed coping And child report • Pain coping skills from pre-treatment to follow-up (time points: post-treatment, 3 and 6 months)	• parent and child report symptom severity • parent report child functional disability from pre-treatment to post-treatment, but not for follow-ups, where the ES group had also improved.
McGrath et al. (1992)	1.Self-Administered (SA) at home 2.Clinic based (CB):	8 hours	Manualised: Yes Treatment Fidelity	Yes for both groups (not ctrl)	No between group differences were observed.	Significantly greater reduction for the SA group compared with the CB and

	Protocol for both groups: • Relaxation exercises • Cognitive restructuring • Distraction and coping strategies • Problem-solving 3.Control: • Provided with list of common triggers for headache, asked to avoid Taught a brainstorming technique for stressful situations		independently rated: NR Treatment Fidelity monitored through supervision : NR		A significant reduction in • depression scores from pre- to post-treatment for all 3 groups. *Treatment gains were maintained for the clinic and self-administer groups at 3 and 12 month follow-up.	control groups from pre- to post-treatment in • headache index scores Significant within groups improvements from pre- to post-treatment in • headache index scores for clinic and self-administer groups but not the control group. Treatment gains were maintained at follow-up
Palermo et al. (2009)	1.Online Family SLCBT: Children: • psycho-education • cognitive restructuring • relaxation techniques Parents: • psychoeducation	9 hours	Manualised: Yes Treatment Fidelity independently rated: NA (online modules)	Yes (assignments between logins)	No significant within group or between group differences on pre- to post-treatment • depression scores. *A significant within groups reduction in the treatment group in	Significantly greater reduction in the SLCBT group compared with the control group in • activity limitations • pain intensity *Within groups treatment gains in

	• operant skills training (response to illness) • communication • modelling 2.Wait list control group				• depressive symptoms at 3 month follow-up (control group not followed up).	these domains were maintained for the SLCBT group at follow-up (control group not followed up).
Palermo et al. (2016)	1. Internet delivered CBT (WEB-MAP) • Pain education • training in behavioural and cognitive coping skills • activity scheduling • education about pain behaviours • parental operant and communication strategies • Limited access to an online coach 2. Internet delivered Education • Pain psycho-education	9 hours per family (4 hours - adolescent, 4 hours - parent and 1 hour - coach time)	Manualised: Yes Treatment Fidelity independently monitored: NR Treatment Fidelity monitored through supervision: Yes	Yes	Significantly greater reductions in Internet CBT group compared with control group from pre- to post-treatment, but not at 6 month follow up in • Depression subscale (BAPQ) • Pain-related Anxiety subscale (BAPQ) No significant between group differences on • General anxiety subscale (BAPQ)	Significantly greater improvements in Internet CBT group compared with control group from pre-treatment to 6 follow-up in • Activity limitations No significant between group differences from pre-treatment to 6 month follow-up on • pain intensity

	Diaries and assessments					
Scharff et al. (2002)	1.Hand-warming group: • Thermal biofeedback training • Progressive muscle relaxation • Imagery • Vasodilation • Breathing techniques • Stress management techniques 2.Hand-cooling group: • Thermal biofeedback training • Imagery (cold places) • Peripheral vasoconstriction • Therapist support 3. Wait list control group	4 hours (hand-warming and hand-cooling groups)	Manualised: Yes Treatment Fidelity independently rated: No Treatment Fidelity monitored through supervision : NR	Yes	No significant between or within groups differences reported at any time point on • Depression scores • Anxiety scores	Significantly greater reduction in the hand-warming group than the hand-cooling and waitlist control groups from pre- to post-treatment in • Headache index No between group differences at 3,6 or 12 month follow-up
Schurman et al (2010)	1.BART:	8 hours and 20 minutes	Manualised: Yes Treatment Fidelity	Homework, focused	Significantly greater reduction in	Significantly greater reduction in the BART+SMC group

	• standard medical treatment plus • relaxation methods such as abdominal breathing progressive muscle relaxation imagery and autogenic handwarming • integration and maintenance of these skills. • Participants were provided with a practice CD and a temperature trainer for use at home 2.SMT: Standard medical treatment alone		independently rated: NR Treatment Fidelity monitored through supervision : NR	on mastery of relaxation skills	• parent report depressive scores for the SMC group than the BART+SMC group from pre-treatment to 6 month follow-up. No significant reduction in in either group for anxiety scores	compared with the SMC group from pre-treatment to 6 month follow in • highest level of pain intensity pain duration up
Trautmann & Kroner-Herwig (2010)	1.Internet based CBT: • education on headaches • stress management	Unknown (6 modules)	Manualised: Yes Treatment Fidelity independently	Yes	No significant between group differences in • pain catastrophizing	No significant between group differences in • headache frequency

	• progressive relaxation techniques • cognitive restructuring • self-confidence strategies • problem-solving 2.Applied Relaxation (AR): • progressive relaxation • cue-controlled relaxation • differential relaxation 3.Education (control): headache education		rated: NA (online modules)		(measure of anxiety) Significant reduction in all three groups from pre-treatment to follow-up (time-points at post-treatment and 6 months) in • pain catastrophizing No significant within or between group differences in • depression • emotional adjustment • behavioural adjustment relationship factors	• headache intensity • headache duration Significant reduction in all three groups from pre-treatment to follow-up (time-points at post-treatment and 6 months) in • headache frequency headache duration
van der Veek, Derkx, Benninga, Boer, de Haan (2013)	1.CBT: Tailored to child's needs • relaxation exercises • cognitive re-structuring • graded exposure • behaviour therapy directed at parent	4 hours 30 minutes	Manualised: No Tailored to child needs, including the therapists choice of 1 standard and 3 optional modules. Treatment Fidelity	Not reported	Significantly greater reduction in the CBT group compared with the IMC group from pre- to post-intervention and at 6 month follow-up in • depression scores • anxiety scores.	No significant between group differences on • Pain intensity • pain duration • functional disability • Somatisation

	(response to illness behaviours) 2.Intensive Medical Treatment (IMT) • prescription of medication • education about complaints • advice about continuing school and daily activities dietary advice		independently rated: NA Treatment Fidelity monitored through supervision : Yes		These differences did not reach significance at 12 month follow-up as the IMC group scores had improved.	Significant within groups reduction from pre- to post-treatment for both groups in • Pain intensity • pain duration • functional disability • Somatisation These treatment gains were maintained at 6 and 12 month follow-up.
Warner et al., (2011)	1.CBT (Treatment of Anxiety and Physical Symptoms; TAPS) • relaxation • cognitive restructuring • exposure exercises to target fears related to physical pain and anxiety	14 hours and 15 minutes	Manualised: Yes Treatment Fidelity independently rated: NR Treatment Fidelity monitored through supervision : NR	NR	Significantly greater reductions in TAPS group compared with control group from pre- to post-treatment in • those meeting criteria for Anxiety Disorders • clinical severity rating of anxiety	Significantly greater reductions in TAPS compared with waitlist control group from pre- to post-treatment in • parent pain rating • child pain rating Significantly greater increases in TAPS

	inducing situations • change parental responses to illness (decrease avoidance related to pain and reinforce active coping) 2.Wait list control group				*Treatment gains were maintained at 3 month follow-up	compared with control group from pre- to post-treatment in • independent evaluator global functioning scores *Treatment gains were maintained at 3 month follow-up
Wicksell et al. (2009)	1.ACT/CBT Child: • exposure to avoided situations • coping: emphasis of acceptance as an alternative to avoidance • cognitive shift in perspective from symptom reduction to valued living • behavioural activation Parent: • exposure	13 hours	Manualised: Yes Treatment Fidelity independently monitored: Yes Treatment Fidelity monitored through supervision : Yes	Yes	Significantly greater changes were seen in the ACT group as compared to the MDT group from pre- to post-treatment in • Kinesiophobia (pain related anxiety) • pain impairment beliefs This difference reached significance only for pain impairment beliefs when 3.5 and 6.5 month follow-up assessments were	Significantly greater changes were seen in the ACT group as compared to the MDT group from pre- to post-intervention in • health-related quality of life • pain interference • pain intensity • pain-related discomfort These differences reached significance only for

	• operant mechanisms (adapting responses to illness) • shift perspective from symptom alleviation to valued life 2.Multidisciplinary treatment and amitriptyline (MDT) • The MDT was performed by a psychiatrist, a child psychologist, a physiotherapist and a pain physician Participants were seen by the different health care providers based on individual needs.				included in the analysis. A non-significant greater reduction in the ACT group compared to the MDT group in • in depression scores from pre-treatment to 6.5 month follow-up	Pain intensity and Pain-related discomfort when 3.5 and 6.5 month follow-up assessments were included in the analysis.

NR=Not Reported
*referring to pre-post treatment gains as follow-up comparison not carried out since control group had been given treatment at this stage
** Findings due to baseline differences and were not clinically significant.
***significant at the .10 level

**** Effects disappeared when analysis controlled for baseline levels