BEST in Mental Health
BEST.awp.nhs.uk

Best Evidence Summaries of Topics in Mental Healthcare

BEST *in* MH *clinical question-answering service*

Question

"In adults with chronic pain (non-cancer), how effective is internet-delivered psychological therapy, compared to any other intervention, for improving patient outcomes?"

Clarification of question using PICO structure

Patients:	Adults with chronic pain (non-cancer)
Intervention:	Internet-delivered psychological therapy
Comparator:	Any
Outcome:	Any patient outcomes

Email: awp.BESTinMH@nhs.net Phone: 0117 378 4232/4233/4335 @BESTinMH

Clinical and research implications

No definite clinical implications can be made from the available evidence. The authors of a well-conducted systematic review suggested that Internet-delivered psychological therapies are promising, but more trials are needed to determine the efficacy of such therapies. The authors also stated that the exact content of therapy, the characteristics of the treatment method, and the methods by which individuals are selected for such therapy are not known - in essence, it is not known what can work for whom and in what context.

What does the evidence say?

Number of included studies/reviews (number of participants)
One Cochrane systematic review (SR) (Eccleston et al. 2014), one dissertation that included three relevant RCTs (Buhrman 2012; see also Buhrman et al. 2013), and one further RCT (Dear et al. 2013) met the inclusion criteria for this BEST summary. All of the RCTs were also included in the systematic review.

Main Findings
The SR evaluated psychological therapies (Internet-delivered) for the management of chronic pain in adults (Eccleston et al. 2014). The authors reported that, for non-headache conditions, pain, disability, depression, and anxiety were significantly improved with Internet-delivered psychological therapies immediately post-treatment (mean duration of therapy was 11 weeks (range 3 to 46 weeks) compared to control groups (i.e. active control [e.g. multimodal behaviour treatment including a CD of muscular relaxation], treatment-as-usual, or waiting-list control). At follow-up, however, only disability remained improved. For headache conditions, only pain and disability improved immediately post-treatment. The authors suggested, however, that the findings for headache conditions should be treated with caution as only two studies could be included in each of the analyses.

Three RCTs (Buhrman 2012; Buhrman et al. 2013) variously evaluated either an internet-based cognitive treatment (Study 1 and 2) or an internet-delivered acceptance and commitment therapy (Study 3) vs a waiting list control (Study 1) or a moderated online discussion forum (Study 2 and 3) for people with chronic pain (Study 1 and 3), or for people who had previously completed multidisciplinary treatment at a pain management unit (Study 2). The author(s) reported generally positive results for all interventions, although we note that not all outcomes evaluated showed significant differences between the treatment and control groups. As these studies are included in the systematic review already, we have not discussed their results in detail (see data extraction below).

The last RCT that met the inclusion criteria for this BEST summary (Dear et al. 2013) evaluated an 8 week iCBT programme called the Pain Course, which aimed to teach self-management skills to adults with chronic pain. As above, the authors reported that, in comparison to a waitlist control, the treatment group participants demonstrated significantly greater improvements in levels of disability, anxiety, depression, and average pain levels at post-treatment.

Authors Conclusions

Eccleston et al. (2014) concluded that there was insufficient evidence to make conclusions regarding the efficacy of psychological therapies delivered via the Internet in participants with headache conditions. For participants with non-headache conditions, psychological therapies delivered via the Internet reduced pain, disability, depression, and anxiety post-treatment, but considerable uncertainty remains around the estimates of effect. More trials are needed to determine the efficacy of such therapies.

Buhrman (2012) concluded that guided internet-based CBT can decrease distress associated with chronic pain, and Buhrman et al. (2013) concluded that an acceptance based internet delivered treatment can be effective for persons with chronic pain.

Dear et al. (2013) concluded that their study provided support for the potential of clinician-guided iCBT for people with chronic pain.

Reliability of conclusions/Strength of evidence

The systematic review was well-conducted, and the authors cautious conclusions likely to be reliable. Due to a lack of methodological reporting, all the RCTs included in this BEST summary had an unclear risk of bias, so that the reliability of their conclusions is uncertain.

What do guidelines say?

SIGN guidelines for the management of chronic pain (CG136, 2013) make the following comments and recommendations regarding internet based therapies;

"The use of internet based self-help materials can be a beneficial adjunct to clinical care for short term pain relief, reduction in perceived disability, and improvement in stress, coping and social support.

Self-management resources should be considered to complement other therapies in the treatment of patients with chronic pain.

Healthcare professionals should signpost patients to self help resources, identified and recommended by local pain services, as a useful aide at any point throughout the patient journey. Self-management may be used from an early stage of a pain condition through to use as part of a long term management strategy." (p.8)

Date question received: 12/08/2014
Date searches conducted: 12/09/2014
Date answer completed: 04/12/2014

References

Scottish Intercollegiate Guidelines Network (2013) The Management of Chronic Pain CG136. Edinburgh: Scottish Intercollegiate Guidelines Network
http://www.sign.ac.uk/pdf/SIGN136.pdf

Buhrman, M. (2012). Guided Internet-Based Cognitive Behaviour Therapy for Chronic Pain. (Doctoral dissertation). *Uppsala: Acta Universitatis Upsaliensis*.

Buhrman, M., Skoglund, A., Husell, J., Bergström, K., Gordh, T., Hursti, T., & Andersson, G. (2013). Guided internet-delivered acceptance and commitment therapy for chronic pain patients: A randomized controlled trial. *Behaviour Research and Therapy*, *51*(6), 307-315.

Dear, B. F., Titov, N., Perry, K. N., Johnston, L., Wootton, B. M., Terides, M. D., & Hudson, J. L. (2013). The Pain Course: A randomised controlled trial of a clinician-guided Internet-delivered cognitive behaviour therapy program for managing chronic pain and emotional well-being. *Pain*, *154*(6), 942-950.

Eccleston, C., Fisher, E., Craig, L., Duggan, G.B., Rosser, B.A. and Keogh, E. (2014). Psychological therapies (Internet-delivered) for the management of chronic pain in adults. *Cochrane Database of Systematic Reviews*, Issue 2.

Results

Systematic Reviews

Author (year)	Search Date	Inclusion criteria	Number of included studies	Summary of results	Risk of bias
Eccleston et al. (2014)	13/11/2013	*P*: Adults (aged 18 years or older) who reported non-cancer chronic pain, described as the experience of pain for 3 months or longer. *I*: Internet-delivered psychological therapies that were interactive with the user. *C*: Active control, treatment-as-usual, or waiting-list control. *O*: Improved pain symptoms, reduction of disability, reduced depression and anxiety, adverse events, satisfaction with treatment, and quality of life. *S:* Randomised controlled trials.	n = 15 RCTs	The mean duration of therapy in the included studies was 11 weeks (range 3 to 46 weeks). **Treatment versus control for headache conditions post-treatment** There were significant overall effects in favour of psychological therapies for pain (RR 7.28, 95% CI 2.67 to 19.84, I2 = 0%; 2 studies, 131 participants), disability (SMD −0.65, 95% CI −0.91 to −0.39, I2 = 0%, 2 studies, 241 participants), but not for depression (4 studies, 617 participants) or anxiety (3 studies, 546 participants). Only one study reported adverse outcomes: the study reported that 11.6% of treatment completers reported worsening of headache symptoms (the distribution between treatment and control groups was not reported). **Treatment versus control for headache**	Low

				conditions at follow-up There was no clear evidence of a benefit of treatment for depression or anxiety (2 studies, 425 participants evaluated for both outcomes). No data were available for pain or quality of life at follow-up. **Treatment versus control for non-headache conditions post-treatment** There were significant overall effects in favour of psychological therapies for pain (SMD −0.37, 95% CI −0.59 to −0.15, I2 = 77%; 11 studies, 1785 participants) and disability (SMD −0.50, 95% CI −0.79 to −0.20, I2= 79%; 5 studies, 1149 participants), depression (SMD −0.19, 95% CI −0.35 to −0.04, I2 = 29%; 9 studies, 1013 participants), and anxiety (SMD −0.28, 95% CI −0.49 to −0.06, I2 = 66%; 10 studies, 1144 participants), but not for quality of life (3 studies, 202 participants). **Treatment versus control for non-headache conditions at follow-up** There were significant overall effects in favour of psychological therapies for disability (SMD −0.15, 95% CI −0.28 to −0.01, I2 = 20%; 2 studies, 850 participants), but not for pain (4 studies,	

				1202 participants), depression or anxiety (3 studies, 551 participants for both outcomes). No data were presented on satisfaction/acceptability.	

RCTs

Author (year)	Inclusion criteria	Number of participants	Summary of results	Risk of bias
Buhrman et al. 2012	*P*: Patients 18 and 65 years with chronic pain (i.e. pain longer than 3 months) and with functional impairment caused by chronic pain. Not suffering from acute physical or psychological conditions. *I*: Internet based CBT *C*: Any other intervention including: Acceptance and Commitment Therapy (ACT), wait-list control. *O*: Improvement in chronic pain. Pre and post measures using; Multidimensional Pain Inventory (MPI), Pain and Impairment Relationship Scale (PAIRS), Chronic Pain Acceptance Questionnaire (CPAQ), Hospital Anxiety and Depression Scale (HADS), Montgomery Åsberg Depression Rating Scale (MADRS-self rated). This was a dissertation that included 4	n = 54 (Study II), n=72 (Study III)	Results have only been extracted from two of the three RCTs reported in this dissertation (i.e. Study II and III). The third RCT is described below (Buhrman et al. 2013). **Study II – Guided internet-based CBT vs. waiting list for chronic back pain reduces pain catastrophizing** A significant interaction was obtained for the outcome measure catastrophizing (p=0.0001). A post hoc test on the pre- to post-change scores confirmed a difference between the groups at post-test. Results showed also a significant interaction between group and time in QOLI (p=0.0002), and this was explained by a decrease in the control group and an increase of QOLI scores in the treatment group. A Bonferroni corrected post hoc test on the pre- to post-change scores confirmed a difference between the groups at post-test. RCI on the CSQ- catastrophizing scale demonstrated a significant difference, with 59% (15/26) of treated participants showing a reliable improvement compared to	Unclear

	studies – three of which were RCTs: Study II - Guided internet-based cognitive behavioural treatment for chronic back pain reduces pain catastrophizing: a randomised controlled trial. Study III - Guided internet-delivered cognitive-behavioural therapy for former patients with chronic pain: randomised controlled trial. The aim of study III was to investigate the effect of an iCBT intervention for persons who had completed multidisciplinary treatment at a pain management unit but had residual problems. The internet-based CBT was investigated as a secondary intervention. The control condition consisted of a moderated online discussion forum. A second aim was to investigate effects at six months following end of treatment. Study IV - Guided internet-delivered acceptance and commitment therapy for chronic pain patients: randomised controlled trial. The aim of study IV was to investigate whether an internet based ACT treatment would help chronic pain patients. Participants were recruited from a clinical setting. The active treatment group was compared to a moderated online discussion forum.		18% (5/28) in the control group (p=0.003). Significant effects for time were found for PAIRS (p=0.05) and HADS anxiety. There was a main effect of time for HADS anxiety (p=0.05), that is, a total improvement was found regardless of group allocation. **Study III – Guided Internet-delivered CBT for chronic pain patients who have residual symptoms after rehabilitation treatment** After controlling for pre-test scores, there was a significant treatment effect on the CSQ diverting attention subscale, in favour of the treatment group, (p=0.05). A large between group effect size was found Cohen's d = 1.13. On the CSQ-catastrophizing subscale the ANCOVA showed a significant between group effect, p=0.03. RCI on the CSQ-catastrophizing scale did not result in any significant between group difference, with 47.2% (17/36) improving in the treatment group and 30.6% (11/36) in the active control. In the secondary outcome measures, a significant effect was found on the HADS anxiety scale, in favour of the treatment group (p=0.01). There was also a significant between group effect on the HADS depression scale (p=0.04). Regarding MPI, significant effects were found on the MPI life control scale (p =0.018), affective distress (p<0.001), and on the punishing responses scale (p=0.05), all in favour of the treatment group. ANCOVA showed a significant between group effect in PAIRS (p=0.005). Follow-up analysis for the completers showed that the results persisted after six months, in all the mentioned scales.	

Buhrman et al. (2013)	*P*: 27 to 69 years, having undergone medical investigation (within one year), had regular access to the internet and had functional impairment caused by chronic pain. *I*: 7-weeks of Internet guided Acceptance and Commitment Therapy; the treatment program consisted of information, assignments, relevant metaphors, and mindfulness exercises. *C*: Moderated online discussion Forum. *O*: Chronic Pain Acceptance Questionnaire (CPAQ), Hospital And Anxiety Depression Scale (HADS), The Coping Strategies Questionnaire (CSQ), Multidimensional Pain Inventory (MPI), The Pain And Impairment Relationship Scale (PAIRS).	n = 76, Treatment group (n = 38), Control group (n = 38)	There were significant effects between groups on the CPAQ-activity engagement scale (p=0.04), CPAQ- pain willingness scale (p=0.012), the total scale on CPAQ (p=0.017), the CPAQ-activity engagement scale (p=0.04), CPAQ- pain willingness scale (p=0.012), on the total scale on CPAQ (p=0.017), the CSQ-catastrophizing subscale (p=0.016), the CSQ- praying and hoping subscale (p=0.003), the MPI- interfering subscale (p=0.003) and on the MPI-affective distress (p=0.027) in favour of the treatment group. The six months follow-up results did not show any improvements or deterioration on any of these measures. ANCOVA did not show any significant effect on the QOLI or on the PAIRS. There was also no significant effects on the CSQ- diverting attention scale, reinterpret pain sensations, coping self-statements, ignore pain sensations, increasing activity level and pain behaviours, or on the MPI scales: pain severity, life control, support, punishing responses, solicitous responses and distracting responses.	Unclear
Dear et al. (2013)	*P*: 18 years or over. Experienced pain for more than 3 months, pain assessed by GP/ specialist, access to a computer and the internet, 6) not currently participating in CBT, on a stable dose of medication (>1 month) prescribed for anxiety or depression, not currently experiencing a psychotic illness or severe symptoms of depression. *I*: iCBT; Content based on the principles of	n = 63, Treatment Group (n = 32), Control Group (n = 31)	After 8 weeks, the treatment group had significantly better post-treatment scores than the control group on the RMDQ, PHQ-9, GAD-7, PSEQ , TSK ($p < 0.001$ for all), and the catastrophising subscale of the PRSS ($P = 0.005$). The treatment group also reported significantly less average pain at post-treatment than the control group (p=0.001). No differences, however, were found between the groups on the coping subscale of the PRSS.	Unclear

	CBT. 5 online lessons, 5 lesson summaries combined with homework assignments, and 9 written resources. *C*: Waitlist control. *O*: Patient Health Questionnaire 9-Item (PHQ-9), Generalized Anxiety Disorder 7-Item (GAD-7), Roland Morris Disability Questionnaire (RMDQ), Wisconsin Brief Pain Questionnaire (WBPQ), Pain Self-efficacy Questionnaire (PSEQ), TAMPA Scale of Kinesiophobia (TSK), Pain Responses Self-Statements (PRSS). Both groups completed questionnaires at pre and post-treatment, only treatment group completed questionnaires at 3-month follow-up.		Paired-samples t-tests comparing post-treatment and 3-month follow-up scores on the PHQ-9, GAD-7, RMDQ, PSEQ, TSK, and PRSS subscales and average pain ratings revealed no significant differences for the treatment group. Significantly more participants in the treatment group, compared with the control group, reported improvements ≥ 30% at post-treatment on measures of disability (RMDQ; 41% vs 1%), depression (PHQ-9; 58% vs 8%), anxiety (GAD-7; 41% vs 12%), and average pain ratings (WBPQ; 25% vs 12%). The results were sustained at 3-month follow-up for the treatment group.	

Risk of Bias:

SRs

Author (year)	Risk of Bias				
	Inclusion criteria	Searches	Review Process	Quality assessment	Synthesis
Eccleston et al. (2014)	☺	☺	☺	☺	☺

RCTs

Study	RISK OF BIAS					
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting
Buhrman et al. 2012	?	?	N/A	?	☺	?
Buhrman et al. (2013)	☺	☺	N/A	?	☺	?
Dear et al. (2013)	☺	?	N/A	?	☺	?

☺Low Risk ☹High Risk ? Unclear Risk

Search Details

Source	Search Strategy	Number of hits	Relevant evidence identified
SRs and Guidelines			
NICE	(Internet OR computer) and pain	93	1
Primary studies			
CENTRAL	#1 chronic NEAR pain #2 MeSH descriptor: [Chronic Pain] #3 #1 or #2 #4 internet or online or web-based or computer* #5 tele* or email or e-mail or world-wide-web #6 MeSH descriptor: [internet] #7 {OR #4-#6} #8 #3 and #7 and (2013 OR 2014) 339 results in Central	339	4
PsycINFO	1. PsycINFO; CHRONIC PAIN/; 8930 results. 2. PsycINFO; SOMATOFORM PAIN DISORDER/; 652 results. 3. PsycINFO; (chronic adj2 pain).ti,ab; 10860 results. 4. PsycINFO; (chronic adj2 headache*).ti,ab; 1384 results. 5. PsycINFO; Fibromyalgia.ti,ab; 2060 results. 6. PsycINFO; FIBROMYALGIA/; 1148 results. 7. PsycINFO; (orofacial adj2 pain*).ti,ab; 223 results. 8. PsycINFO; neuralgia*.ti,ab; 914 results. 9. PsycINFO; NEURALGIA/; 386 results. 10. PsycINFO; migraine*.ti,ab; 8514 results. 11. PsycINFO; headache.ti,ab; 11272 results.	14	0

	12. PsycINFO; 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11; 29504 results. 13. PsycINFO; INTERNET/; 19844 results. 14. PsycINFO; ONLINE THERAPY/; 1159 results. 15. PsycINFO; (internet OR online OR cyber*).ti,ab; 43070 results. 16. PsycINFO; (computer* OR web-based).ti,ab; 69896 results. 17. PsycINFO; world-wide-web.ti,ab; 1301 results. 18. PsycINFO; (e-mail* OR email*).ti,ab; 4996 results. 19. PsycINFO; web-deliver*.ti,ab; 33 results. 20. PsycINFO; 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19; 111473 results. 21. PsycINFO; 12 AND 20; 645 results. 22. PsycINFO; 21 [Limit to: Publication Year 2013-2014]; 42 results. 23. PsycINFO; CLINICAL TRIALS/; 6909 results. 24. PsycINFO; random*.ti,ab; 120704 results. 25. PsycINFO; groups*.ti,ab; 347430 results. 26. PsycINFO; (doubl* adj3 blind*).ti,ab; 17412 results. 27. PsycINFO; (singl* adj3 blind*).ti,ab; 1520 results. 28. PsycINFO; EXPERIMENTAL DESIGN/; 8705 results. 29. PsycINFO; controlled.ti,ab; 75210 results. 30. PsycINFO; (clinical adj3 study).ti,ab; 7384 results. 31. PsycINFO; trial.ti,ab; 63704 results. 32. PsycINFO; "treatment outcome clinical trial".md; 24966 results. 33. PsycINFO; 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32; 536340 results.		

	34. PsycINFO; 22 AND 33 [Limit to: Publication Year 2013-2014]; 14 results.		
Embase	35. EMBASE; (Pain* OR Headache*).ti,ab; 673892 results. 36. EMBASE; (Fibromyalgia* OR neuralgia* OR migrain*).ti,ab [Limit to: Publication Year 2013-2014]; 6688 results. 37. EMBASE; CHRONIC PAIN/; 34760 results. 38. EMBASE; PSYCHOGENIC PAIN/ [Limit to: Publication Year 2013-2014]; 195 results. 39. EMBASE; FIBROMYALGIA/; 13520 results. 40. EMBASE; NEURALGIA/; 6212 results. 41. EMBASE; 35 OR 36 OR 37 OR 38 OR 39 OR 40 [Limit to: Publication Year 2013-2014]; 91580 results. 42. EMBASE; (internet OR online OR cyber*).ti,ab; 89646 results. 43. EMBASE; (computer* OR web-based).ti,ab; 280789 results. 44. EMBASE; world-wide-web.ti,ab; 3052 results. 45. EMBASE; (e-mail* OR email*).ti,ab; 15309 results. 46. EMBASE; web-deliver*.ti,ab; 48 results. 47. EMBASE; INTERNET/; 74980 results. 48. EMBASE; COMPUTER ASSISTED THERAPY/; 3486 results. 49. EMBASE; 42 OR 43 OR 44 OR 45 OR 46 OR 47 OR 48; 406942 results. 50. EMBASE; 41 AND 49 [Limit to: Publication Year 2013-2014]; 2638 results. 51. EMBASE; 50 [Limit to: Publication Year 2013-2014];	530	0

	2638 results. 52. EMBASE; random*.tw; 897239 results. 53. EMBASE; factorial*.tw; 23261 results. 54. EMBASE; placebo*.tw; 201574 results. 55. EMBASE; (crossover* OR cross-over*).tw; 69701 results. 56. EMBASE; (doubl* adj3 blind*).tw; 143358 results. 57. EMBASE; (singl* adj3 blind*).tw; 17019 results. 58. EMBASE; assign*.tw; 241339 results. 59. EMBASE; allocat*.tw; 84952 results. 60. EMBASE; volunteer*.tw; 177409 results. 61. EMBASE; CROSSOVER PROCEDURE/; 40113 results. 62. EMBASE; DOUBLE-BLIND PROCEDURE/; 115250 results. 63. EMBASE; SINGLE-BLIND PROCEDURE/; 18765 results. 64. EMBASE; RANDOMIZED CONTROLLED TRIAL/; 349266 results. 65. EMBASE; 52 OR 53 OR 54 OR 55 OR 56 OR 57 OR 58 OR 59 OR 60 OR 61 OR 62 OR 63 OR 64; 1428636 results. 66. EMBASE; 51 AND 65 [Limit to: Publication Year 2013-2014]; 530 results.		
Cinahl	67. CINAHL; (Pain* OR Headache*).ti,ab; 107708 results. 68. CINAHL; (Fibromyalgia* OR neuralgia* OR migrain*).ti,ab [Limit to: Publication Year 2013-2014]; 1181 results. 69. CINAHL; CHRONIC PAIN/; 9731 results. 70. CINAHL; NEURALGIA/; 1279 results.	113	0

	71. CINAHL; FIBROMYALGIA/; 2969 results. 72. CINAHL; 67 OR 68 OR 69 OR 70 OR 71 [Limit to: Publication Year 2013-2014]; 12407 results. 73. CINAHL; (internet OR online OR cyber*).ti,ab; 29281 results. 74. CINAHL; (computer* OR web-based).ti,ab; 30755 results. 75. CINAHL; world-wide-web.ti,ab; 929 results. 76. CINAHL; (e-mail* OR email*).ti,ab; 3491 results. 77. CINAHL; web-deliver*.ti,ab; 23 results. 78. CINAHL; INTERNET/; 25344 results. 79. CINAHL; 73 OR 74 OR 75 OR 76 OR 77 OR 78; 74448 results. 80. CINAHL; 72 AND 79 [Limit to: Publication Year 2013-2014]; 366 results. 81. CINAHL; controlled.ti,ab; 65443 results. 82. CINAHL; (clinical adj3 study).ti,ab; 10524 results. 83. CINAHL; trial.ti,ab; 68027 results. 93. CINAHL; random*.ti,ab; 112975 results. 94. CINAHL; (crossover* OR cross-over*).ti,ab; 6954 results. 95. CINAHL; (doubl* adj3 blind*).ti,ab; 13969 results. 96. CINAHL; (singl* adj3 blind*).ti,ab; 2400 results. 97. CINAHL; allocat*.ti,ab; 11275 results. 98. CINAHL; "clinical trial".pt; 51653 results. 99. CINAHL; 81 OR 82 OR 83 OR 93 OR 94 OR 95 OR 96 OR 97 OR 98; 188921 results. 100. CINAHL; 80 AND 99 [Limit to: Publication Year 2013-2014]; 113 results.		
Summary	**NA**	**NA**	

Disclaimer

BEST in MH answers to clinical questions are for information purposes only. BEST in MH does not make recommendations. Individual health care providers are responsible for assessing the applicability of BEST in MH answers to their clinical practice. BEST in MH is not responsible or liable for, directly or indirectly, any form of damage resulting from the use/misuse of information contained in or implied by these documents. Links to other sites are provided for information purposes only. BEST in MH cannot accept responsibility for the content of linked sites.