Evidence Table 9. Outcomes reported in studies addressing pain

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| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Anderson, 20041 | pain (intensity and interference) | BPI | 97 | specifically looking at underserved populations (black and hispanic only) |  | NS | At the 8-10 week assessmen only (of 3 different assessment time points), the control group reported a lower mean pain worst rating than the education group (P 􏰃 <.05) AA Patients only: analysis of the pain worst item revealed a significant group-by-time interaction (P< .01). For pain interference: significant group-by-time interaction for the Af- rican American patients (P<.04) but not for Hispanic patients (P =.41); recruitment was challenging in this population |
|  | QOL | Physical and Mental Health Summary Scales of the Short Form (SF) -12 Health Survey |  |  |  | NS |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Aubin, 20062 | Pain scores | BPI | 80 patients, control: 27, intervention: 53 |  | Average pain scores at baseline, two weeks and four weeks between the experimental (3.0, 2.1, 1.7) and control groups (2.4, 3.3, 2.4) were significantly different (p = 0.01) | Maximum pain scores were not significantly different over time for the experimental and control groups |  |
| Borneman, 20083 | Pain scores | QOL scalecancer patient tool, | 46 patients, 18 in control, 28 in intervention |  | No statistically significant effects on outcomes of interest between experimental and control | Overall QOL, physical QOL, psychological QOL, spiritual QOL, social QOL, fatigue-related QOL, pain-related QOL all ns |  |
|  | Fatigue | Piper fatigue scale |  |  |  | Sensory fatigue, overall fatigue |  |
| Borneman, 20104 | Pain scores | Treatment data | 187 patients, 83 in control; 104 in intervention | Sample included 35% ethnic minorities |  | NS |  |
|  | Fatigue | Piper fatigue scale, barriers questionnaire, fatigue barriers scale, fatigue knowledge tool |  |  | Sensory fatigue dropped significantly at one and three months for the intervention group (baseline: 6.4; 1 month: 5.4; 3 months: 4.4), it did not change over time for the usual care group (baseline: 6.4; 1 month: 6.2; 3 months: 5.5), and this difference was statistically significant (p=0.025) |  |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Dalton, 20045 | Pain scores | BPI | 127 patients, standard cbt=43, profile tailored cbt (intervention) = 50, usual care = 34 |  |  | 6 month follow-up: of 10 components of BPI, only 1 statistically significant in each arm vs. usual care at p=0.04 | High level of attrition; unable to abstract 1-month outcomes from study due to table formatting issue, despite contact with authors |
|  | Distress | Symptom distress scale |  |  | 6 months: 36 symptoms statistically significant for tailored intervention |  |  |
|  | Psychosocial symptoms | Profile of mood states |  |  |  | 6 months: ns for tailored, 12 significant for standard |  |
|  | QOL | Sf-12 |  |  |  | 6 months: ns |  |
|  | Karnofsky performance status, pain goals |  |  |  |  | Ns |  |
| Du pen, 20006 | Pain scores | BPI | 20 oncologists and 38 oncology nurses; 105 patients - 54 in intervention, 51 in control |  | Intervention group experienced a decrease in their mean level of usual pain on a scale of 0 to 10 from a baseline mean score of 3.6 (standard deviation [sd] =1.9) to a mean score of 2.8 (sd =1.9); patients treated by untrained physicians nurses experienced a relatively flat trajectory in their level of usual pain over the 4 months of their treatment (mean =3.0, sd =2.0). The difference between the 2 groups was statistically significant(t = 2.0, p = .05) |  |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Du pen, 20006  (continued) | Opioid provider adherence scores (0 to 3 scale), neuropathic co-analgesic prescribing | Chart abstraction |  |  |  | NS |  |
|  | Overall adherence | Chart abstraction - aggregate score (tpa) |  |  | Statistically significant improvement in tpa in the trained group versus control group, as measured by slope scores (t = 2.1, p = .04). |  |  |
| Fuchs-lacelle, 20087 | Nurse-assessed pain scores | Pain assessment checklist for seniors with limited ability to communicate | 173, 89 in intervention, 84 in control |  |  | Longitudinal outcome: systematic pain assessment statistically changed the log expected rate of observable pain behaviors. More specifically, pain scores, as measured by the pacslac, showed a statistically significant decrease at the rate of 0.01 for each unit of time. |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Fuchs-lacelle, 20087  (continued) | Increased use of underused pain management medication | (medication quantification scale) |  |  |  | Longitudinal outcome: baseline (0.64, sd=2.07) for the experimental condition and (0.44, sd=1.65) for the control condition. At the end of the intervention, (0.98 (sd=2.12) for the experimental condition and (0.16, sd=0.82) for the control condition. (p=0.00) |  |
| Given, 20028 | Pain scores | The symptom experience scale | 113 patients 53 in intervention, 60 in control |  |  | Ns |  |
|  | Fatigue | The symptom experience scale |  |  |  | Ns |  |
| Keefe, 20059 | Pain scores | BPI - usual pain and worst pain | 78 patients, 41 in intervention, 37 in control i |  |  | Ns |  |
|  | QOL,, caregiver strain, caregiver mood, |  |  |  |  | Ns |  |
| Kovach, 200610 | Patient symptoms; discomfort | Behave-ad | 114 patients; 57 each in intervention and control |  |  | Ns |  |
|  |  | Discomfort-data |  |  | Significant intervention x time effect on discomfort-ad scores (p<0.001) |  |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Lovell, 201011 | Pain scores | Wisconsin brief pain inventory | 185 patients, 40 in standard care, 37 in booklet only group, 36 in video only group, 45 in booklet plus video group |  | There was a significant difference in the change in average pain score between the standard care group (mean: 0.02) and the booklet and video group (mean: 1.19; difference: 1.17 with 95% ci: 0.17, 2.17, p = 0.0214). Reductions in worst pain scores were significantly greater in the booklet and video group than in the standard care group ( 1.53 vs. 0.41; difference: 1.12 with 95% CI: 0.00, 2.23, p = 0.05). | Booklet versus standard care ns  video versus standard care ns  no significant differences for pain interference between the groups | There were marginal differences between standard care and booklet alone (p = 0.07) and standard care and video alone (p = 0.09) for average pain the presence of a partner increased the effect of any educational intervention on average pain and worst pain scores compared to those without partners (significant) |
| Lovell, 201011 | Anxietydepression, QOL | Hospital anxiety and depression scale, uni-scale for global quality of life |  |  |  | Ns |  |
| Marinangeli, 200412 | Pain scores | Vas | 92 patients, 44 in intervention, 48 in control |  | Intervention group significantly better than control group on pain scores (control - 4.98 +- 1.26 vs. Intervention 4.23 +- 1.36; p 0.007) and with greater decrease in pain from baseline (intervention -2.61, control -1.92, p=0.041). |  |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Marinangeli, 200412  (continued) | QOL, performance status | Multidimensional questionnaire. Karnovsky performance status |  |  |  | NS |  |
|  | Side effects |  |  |  | Nausea as a side effect was significantly lower in the intervention group (315 episodes versus 437 episodes; p = 0.0001). | Vomiting, constipation, gastro-enteric bleeding, periods of mental confusion |  |
|  | Satisfaction |  |  |  | Intervention group significantly more satisfied with pain management (intervention 85.6% vs. Control 80.5%, p = 0.041), |  |  |
| Miaskowski, 200413 and Miaskowski, 200714 | Pain scores; pain intensity | BPI | 174 patients, intervention=93, control=81 (2004), 167; intervention=89, control=78 (2007) |  | For least pain, a significant group x time interaction (p< 0.0001) was found. For average pain, a significant group x time interaction (p<0.0001) and significant main effects by group (p=0.026) for worst pain, a significant group x time interaction (p< 0.0001) as well as significant main effects of group (p =.033) were found. | No significant difference for least pain scores between groups. |  |
|  | Pain interference | BPI |  |  |  | Ns |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Miaskowski, 200413 and Miaskowski, 200714  (continued) | Opioid intake, appropriate analgesia, mood state | Nurse recorded analgesic intake and prescriptions, profile of mood states |  |  |  | Ns |  |
|  | QOL | SF-36 |  |  | Only significant difference is on subscale for body pain, intervention = 39.6, control=46.8 (p=0.005) |  |  |
| Oliver, 200115 Kalauokalani, 200716 | Pain scores; average pain | BPI | 67 patients, 34 in intervention, 33 in control |  | Controlling for pain at baseline average pain differed by -8.96 points on a 100 point scale between control and experimental groups (p<0.05) | When social factors are added to the model, this association fails to meet significance |  |
|  | Impairment due to pain and pain frequency | Pain effects subscale of the mos-paq |  |  |  | Functional impairment due to pain and pain frequency - no significant differences |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Oldenmenger, 201117 | Pain intensity | BPI (current, average, and worst in past 24 hours) | 72 |  | For average pain intensity, the mean difference in pain intensity (mDPI) was 1.13 for SC and 1.95 for PC-PEP (20% vs 31%; P = .03). For current pain intensity, the mDPI was 0.67 for SC and 1.50 for PC-PEP (16% vs 30%; P = .016). | No significant difference was found between SC and PC-PEP groups for worst pain (1.16 vs 1.28). | Higher adherence to analgesics in intervention group (p=0.03); results were sustained over study period; most patients had multiple visits with pain consult service |
|  | Pain interference | BPI interference questions (7 items, averaged) |  |  | For daily interference, the mean reduction was 0.11 for SC and 0.91 for PC-PEP (2.5% vs 20%; P = .01) |  |  |
|  | Pain knowledge | Ferrell Patient Pain Questionnaire |  |  | At week 2, the level of pain knowledge (0 to 100) was significantly better after randomization to PC-PEP (71, SD = 13) than to SC (64,SD=10;P=.002) |  |  |
|  | adequacy of analgesia | PMI (Pain Management Index) |  |  |  |  |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Oliver, 200115 Kalauokalani, 200716  (continued) |  |  | Minority patients: 8 in intervention, 7 in control | Regression analysis, adjusting for baseline pain, revealed a significant interaction between minority status (Latinos, Asians, blacks, other) and study group for BPI, indicating a greater effect of the intervention in minorities (interaction effect = −1.73,95% ci = −0.06,−3.41,p = 0.043); |  |  |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Syrjala, 200818 | Pain scores | BPI | 78 patients, 43 in intervention, 35 in control |  | Intervention group with better control of usual pain - differed by -.81 with intervention group having greater decrease in pain from baseline (p=0.03)) | Group comparisons were not significant at 6-month time point. |  |
|  | Increased use of opioids | Patient interview and viewing medications by research nurses |  |  | Significant difference in opioid dose between intervention and control group (<0.001) with intervention group taking more morphine (0.31 in log10 of daily morphine dose) |  | The pain training effect on opioid use differed significantly, also, between those whose pain was due to treatment versus those whose pain was due to other etiology, primarily due to disease (p = .009) |
|  | Patient symptoms | Memorial symptom assessment scale |  |  |  | NS |  |
| Van der peet, 200419 | Pain scores | BPI | 120 patients, 58 in intervention, 62 in control |  | Present pain score intervention group = 3.78 versus control group = 4.84 (p=0.02) at 4 weeks follow up | Difference between intervention and control group ns at 8 weeks follow up | Patients in the most pain (BPI -7 or higher) had the greatest benefit from the intervention -significant differences in pain were found between the intervention and control groups at t1 (p=0.00) and t2 (p=0.00) in patients with a baseline score of 7–10. |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Van der peet, 200419 | Depression anxiety; Quality of Life, and non-pain symptoms | HADS |  |  |  | Not reported |  |
| Ward, 200020 | Pain scores; pain intensity | BPI | 43 patients, 21 in intervention, 22 in control |  |  | NS |  |
|  | Pain scores; pain interference | BPI interference scale, plus one additional item about caring for others |  |  |  | NS |  |
|  | Analgesic side effects scores, adequacy of analgesia, QOL | Medication side effect checklist. PMI, fact-g |  |  |  | NS |  |
| Ward, 200821 | Pain scores; pain severity | BPI - worst, least, and pain now - aggregated to single score, also used one question from the total pain management quality dataset for "usual severity" | 176 total patients, 92 in intervention, 84 in control |  |  | NS |  |
|  | Pain interference, analgesic use, QOL | BPI |  |  |  | NS |  |

Evidence Table 9. Outcomes reported in studies addressing pain (continued)

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Outcome measures** | **Measures** | **Sample size** | **Disparities** | **Outcomes: benefits. Significantly improved** | **Outcomes: benefits. Not significantly improved** | **Other key information** |
| Wells, 200322 | Pain scores; worst pain, average pain, pain interference, pain relief | BPI-SF | 64 patients, 24 in standard care, 21 in hot line intervention, and 19 in weekly call intervention |  |  | NS |  |
|  | Analgesic use | PMI |  |  |  | NS |  |
| Wilkie, 201023 | Pain scores | Mcgill pain questionnaire, | 151 patients, 76 in intervention, 75 in control |  |  | NS except for 1 subscale | This intervention did statistically significantly improve pain communication by patients to providers (audio taped data): intervention improved reporting, but more than this is needed to change provider and patient behavior and improve pain |
|  | Anxiety, depression, pain coping, pain prescriptions | State trait anxiety inventory, CES-D coping strategies questionnaire, PMI |  |  |  | NS |  |

**Abbreviations:** BPI=Blood Pressure Index; MQS=Michigan Quality System; PMI=Pain Management Index; QOL=Quality of Life; SF=Significant Finding; HADS=The Hospital Anxiety and Depression Scale; NS=Not Significant;

**Evidence Table 9 Reference List**

1. Anderson KO, Mendoza TR, Payne R *et al*. Pain education for underserved minority cancer patients: a randomized controlled trial. J Clin Oncol 2004; 22(24):4918-25.

2. Aubin M, Vezina L, Parent R *et al*. Impact of an educational program on pain management in patients with cancer living at home. Oncol Nurs Forum 2006; 33(6):1183-8.

3. Borneman T, Koczywas M, Cristea M, Reckamp K, Sun V, Ferrell B. An interdisciplinary care approach for integration of palliative care in lung cancer. Clin Lung Cancer 2008; 9(6):352-60.

4. Borneman T, Koczywas M, Sun VC, Piper BF, Uman G, Ferrell B. Reducing patient barriers to pain and fatigue management. J Pain Symptom Manage 2010; 39(3):486-501.

5. Dalton JA, Keefe FJ, Carlson J, Youngblood R. Tailoring cognitive-behavioral treatment for cancer pain. Pain Manag Nurs 2004; 5(1):3-18.

6. Du Pen AR, Du Pen S, Hansberry J *et al*. An educational implementation of a cancer pain algorithm for ambulatory care. Pain Manag Nurs 2000; 1(4):116-28.

7. Fuchs-Lacelle S, Hadjistavropoulos T, Lix L. Pain Assessment as Intervention: a Study of Older Adults With Severe Dementia. Clinical Journal of Pain 200810; 24(8):697, 707.

8. Given B, Given CW, McCorkle R *et al*. Pain and fatigue management: results of a nursing randomized clinical trial. Oncol Nurs Forum 2002; 29(6):949-56.

9. Keefe FJ, Ahles TA, Sutton L *et al*. Partner-guided cancer pain management at the end of life: a preliminary study. J Pain Symptom Manage 2005; 29(3):263-72.

10. Kovach CR, Logan BR, Noonan PE *et al*. Effects of the Serial Trial Intervention on discomfort and behavior of nursing home residents with dementia. American Journal of Alzheimer's Disease and Other Dementias 2006; 21(3):147-55.

11. Lovell MR, Forder PM, Stockler MR *et al*. A randomized controlled trial of a standardized educational intervention for patients with cancer pain. J Pain Symptom Manage 2010; 40(1):49-59.

12. Marinangeli F, Ciccozzi A, Leonardis M *et al*. Use of strong opioids in advanced cancer pain: a randomized trial. J Pain Symptom Manage 2004; 27(5):409-16.

13. Miaskowski C, Dodd M, West C *et al*. Randomized clinical trial of the effectiveness of a self-care intervention to improve cancer pain management. J Clin Oncol 2004; 22(9):1713-20.

14. Miaskowski C, Dodd M, West C *et al*. The use of a responder analysis to identify differences in patient outcomes following a self-care intervention to improve cancer pain management. Pain 2007; 129(1-2):55-63.

15. Oliver JW, Kravitz RL, Kaplan SH, Meyers FJ. Individualized patient education and coaching to improve pain control among cancer outpatients. Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology 2001; 19(8):2206-12.

16. Kalauokalani D, Franks P, Oliver JW, Meyers FJ, Kravitz RL. Can patient coaching reduce racialethnic disparities in cancer pain control? Secondary analysis of a randomized controlled trial. Pain Med 2007; 8(1):17-24.

17. Oldenmenger WH, Sillevis Smitt PA, van Montfort CA, de Raaf PJ, van der Rijt CC. A combined pain consultation and pain education program decreases average and current pain and decreases interference in daily life by pain in oncology outpatients: a randomized controlled trial. Pain 2011; 152(11):2632-9.

18. Syrjala KL, Abrams JR, Polissar NL *et al*. Patient training in cancer pain management using integrated print and video materials: a multisite randomized controlled trial. Pain 2008; 135(1-2):175-86.

19. van der Peet EH, van den Beuken-van Everdingen MH, Patijn J, Schouten HC, van Kleef M, Courtens AM. Randomized clinical trial of an intensive nursing-based pain education program for cancer outpatients suffering from pain. Support Care Cancer 2008.

20. Ward S, Donovan HS, Owen B, Grosen E, Serlin R. An individualized intervention to overcome patient-related barriers to pain management in women with gynecologic cancers. Research in Nursing & Health 2000; 23(5):393-405.

21. Ward S, Donovan H, Gunnarsdottir S, Serlin RC, Shapiro GR, Hughes S. A randomized trial of a representational intervention to decrease cancer pain (RIDcancerPain). Health Psychol 2008; 27(1):59-67.

22. Wells N, Hepworth JT, Murphy BA, Wujcik D, Johnson R. Improving cancer pain management through patient and family education. J Pain Symptom Manage 2003; 25(4):344-56.

23. Wilkie D, Berry D, Cain K *et al*. Effects of coaching patients with lung cancer to report cancer pain. Western Journal of Nursing Research 2010; 32(1):23-46.