Table 1

*Interventions for the Treatment of Pain and Function Among Patients with Chronic Non-Cancer Pain*

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| **Pharmacological Intervention** | **Efficacy** | **Important Considerations** |
| Opioids | 40 RCTs indicated medium effects on pain intensity (*SMD* = .56) and function (*SMD* = .43) in older adults.  Similar effects on pain intensity in general population (*SMD* = 0.41).  20 RCTs indicated that opioids improved physical function (*SMD* = 0.31). | Associated with increased risk of abuse, fractures, myocardial infarction, and sexual dysfunction.  Insufficient evidence to evaluate effectiveness on long-term use (>3-months). |
| Pharmacotherapy for Neuropathic pain | SNRIs (*SMD* = 0.28); Gabapentin (*SMD* = 0.23); Capsaicin high concentration (*SMD* = 0.17).  Effects for tricyclic antidepressants, strong opioids and tramadol were less than *SMD* = 0.17. |  |
| Cannabis | 16 RCTs indicated small effects of oral and inhaled cannabis on neuropathic pain (*SMD* = 0.16).  5 RCTs indicated small to medium effects of inhaled cannabis on neuropathic pain (*SMD* = 0.32).  8 RCTs indicated small effects on chronic pain (*SMD* = 0.20).  Inconclusive evidence on physical function. | Consider whether desired outcome is reduced pain or improvement in function. |
| **Non-Pharmacological Intervention** | **Efficacy** | **Important Considerations** |
| Physical Activity | Beneficial effects on pain, physical function, sleep, cognitive and emotional function.  Few to no reported harms associated with exercise.  Data from RCTs indicates small to medium effect sizes (*SMD*s generally ranging between .30 and .50). | Consider safety precautions (e.g., risk of fall).  Consider proper posture and body mechanics.  Consider exercises within a range of motion that does not increase pain.  Consider client motivation and principles of activity pacing (start low, go slow). |
| Yoga | Most well studied for shoulder, neck and back pain.  12 RCTs indicate small to medium effect sizes (*SMD*s ~.40 for pain and function) when compared to non-active control. | Consider some risk of increasing back pain.  Consider client’s motivation and preferences for yoga. |
| Mindfulness Meditation | 30 RCTs indicate small effects on pain (*SMD* = 0.30), function (*SMD* = 0.30), depressed mood (*SMD* = 0.15) and quality of life (*SMD* = 0.34). |  |
| Acupuncture | 39 RCTs indicate large effects relative to no treatment (*SMD* = ~0.50) and small effects compared to sham acupuncture (*SMD* = 0.20). |  |
| Psychological therapies (Cognitive Behavior Therapy) | Effective for patients with diverse chronic pain presentations.  RCTs indicate small to medium effect sizes for improving pain (*SMD* = ~0.25-0.50), function (*SMD* = ~0.26-0.50) and depressed mood (*SMD* = ~0.40). | Consider if patient readiness to engage in active treatment.  Consider community resources and availability. Consider online therapies as efficacy is similar. |
| Guided self-help (Psychoeducation / CBT) | 15 studies indicate small effects for pain intensity (*SMD* = ~0.30), physical function (*SMD* = ~0.30), and quality of life (*SMD* = 0.24). |  |
| Psychological therapies (Acceptance and Commitment Therapy) | Effective for patients with diverse chronic pain presentations. Focus is on improving function.  14 RCTs indicate small to medium effect sizes for improving pain (*SMD* = ~0.37), function (*SMD* = ~0.35), depressed/anxious mood (*SMD* = ~0.35), and quality of life (*SMD* = 0.41). | Consider if patients are open to acceptance and mindfulness-based approaches.  Consider the importance of pain vs. functional outcomes.  Consider community resources and availability. |
| Cognitive Behavior Therapy for Insomnia (CBT-I) | 11 RCTs indicate large effects for sleep (*SMD* = 0.78), and small effects for pain (*SMD* = 0.18) and depressed mood (*SMD* = 0.31). | Consider whether patient suffers from chronic pain as well as insomnia. |
| Expectation | Verbal suggestion, conditioning, mental imagery.  6 RCTs indicated a small effect on reduction in pain (*SMD* = 0.30). | The placebo effect is powerful, but so to is the nocebo effect.  Consider methods to instill accurate hope and optimism for treatment. |
| ***Interdisciplinary Chronic Pain Programs*** | Have been shown to outperform usual care, pharmacotherapy, and psychological interventions and physical interventions when used in isolation (*SMDs* = 0.20 – 0.50). | Consider community resources, waitlist duration, and patient readiness and suitability for group treatment. |

Note. RCT = Randomized Controlled Trial; SMD = Standardized Mean Difference

Table 2

*Important Treatment Targets for Patients with Chronic Pain*

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| **Target** | **Evidence & Assessment** | **Assessment Considerations** |
| ***Physical Function*** |  |  |
| Interference | Pain interferes with daily activities and physical function.  Improvement in physical function often results in a more meaningful improvement in patient lives. | Often measured using the interference scale of the Brief Pain Inventory (BPI) or Multidimensional Pain Inventory (MPI).  ***Clinically meaningful difference:***  BPI: ≥ 1-point reduction; MPI: ≥ 1-point reduction |
| Health-Related Quality of Life (HRQoL) | Patients with chronic pain report lower HRQoL than individuals with other chronic conditions (e.g., cancer, myocardial infarction, or stroke). | Often measured using the EuroQuol 5-D (EQ-5D) or the physical subscale of the Short-Form-12 (SF-12)  ***Clinically meaningful difference:***  EQ-5D: ≥ 0.10-point improvement; SF-12: ≥ 4.3-point improvement |
| ***Emotional Function*** |  |  |
| Depression | Estimated that 30%-50% of patients with chronic pain experience clinical depression (3-5-fold increase in risk).  Depression is associated with poor outcomes and worse quality of life among patients with chronic pain. | Often measured using Beck Depression Inventory-2 (BDI-2), Patient Health Questionnaire-9 (PHQ-9); Hospital Anxiety Depression Scale (HADS); or Centre for Epidemiological Studies Depression Scale – Revised (CESD-R).  ***Clinically meaningful difference:***  BDI-2: ≥ 5-point reduction; PHQ-9: ≥ 50% reduction; |
| Anxiety | Estimated that 25% of patients with chronic pain experience clinically relevant levels of anxiety (2.2-fold increase in risk).  Anxiety is directly related to pain and function. | Often measured using the Beck Anxiety Inventory (BAI); HADS; Generalized Anxiety Disorder – 7 (GAD-7); or PTSD Checklist for DSM-5 (PCL-5).  ***Clinically meaningful difference:***  GAD-7 ≥ 5-point reduction; PCL-5 ≥ 10-point reduction. |
| Suicidal Ideation & Attempts | Estimated prevalence of suicide among patients with chronic pain is 5%-14% and suicidal ideation is 20%.  Highly correlated with ***perceived burdensomeness***. | Best triangulated using a measure of suicidal ideation such as the Beck Scale for Suicidal Ideation (BSS), and perceived burdensomeness such as the Self Perceived Burdensomeness Scale (SPBS) or the Interpersonal Needs Questionnaire Perceived Burdensomeness Scale (INQPBS).  Consider risk factors and protective factors as well as patient willingness to agree to a mutually developed safety plan. |
| ***Sleep Disturbance*** | Estimated that 60% of patients with chronic pain experience clinically relevant problems with sleep.  Sleep and pain are bidirectionally related. | Often measured using the Insomnia Severity Index (ISI) or Pittsburgh Sleep Quality Inventory (PSQI).  ***Clinically meaningful difference:***  ISI ≥ 5-point reduction; PSQI ≥ 10-point reduction. |
| ***Global rating of Improvement*** | Provides a summative rating of improvement on a 5-point scale. | Measured following treatment using the Patient Global Impression of Change (PGIC) scale. |

**Resources:**

Carlson, M. (2014). *CBT for chronic pain and psychological well-being: a skills training manual integrating DBT, ACT, behavioral activation and motivational interviewing*. John Wiley & Sons.

Dahl, J., & Lundgren, T. (2006). *Living beyond your pain: Using acceptance and commitment therapy to ease chronic pain*. New Harbinger Publications.

Lewandowski, M. J. (2006). *The chronic pain care workbook: A self-treatment approach to pain relief using the behavioral assessment of pain questionnaire*. New Harbinger Publications Incorporated.

Otis, J. (2007). *Managing chronic pain: A cognitive-behavioral therapy approach*. Oxford university press.

Turk, D. C., & Gatchel, R. J. (Eds.). (2018). *Psychological approaches to pain management: a practitioner's handbook*. Guilford publications.

**References**:

Alperstein, D., & Sharpe, L. (2016). The efficacy of motivational interviewing in adults with chronic pain: a meta-analysis and systematic review. *The Journal of Pain*, *17*(4), 393-403.

Ambrose, K. R., & Golightly, Y. M. (2015). Physical exercise as non-pharmacological treatment of chronic pain: why and when. *Best Practice & Research Clinical Rheumatology*, *29*(1), 120-130.

Andreae, M. H., Carter, G. M., Shaparin, N., Suslov, K., Ellis, R. J., Ware, M. A., ... & Johnson, M. (2015). Inhaled cannabis for chronic neuropathic pain: a meta-analysis of individual patient data. *The Journal of Pain*, *16*(12), 1221-1232.

Dworkin, R. H., Turk, D. C., Farrar, J. T., Haythornthwaite, J. A., Jensen, M. P., Katz, N. P., ... & Carr, D. B. (2005). Core outcome measures for chronic pain clinical trials: IMMPACT recommendations. *Pain*, *113*(1), 9-19.

Dworkin, R. H., Turk, D. C., Wyrwich, K. W., Beaton, D., Cleeland, C. S., Farrar, J. T., ... & Brandenburg, N. (2008). Interpreting the clinical importance of treatment outcomes in chronic pain clinical trials: IMMPACT recommendations. *The Journal of Pain*, *9*(2), 105-121.

Eccleston, C., Fisher, E., Craig, L., Duggan, G. B., Rosser, B. A., & Keogh, E. (2012). Psychological therapies (Internet-delivered) for the management of chronic pain in adults. *Cochrane Database of Systematic Reviews*, *2*.

Finnerup, N. B., Attal, N., Haroutounian, S., McNicol, E., Baron, R., Dworkin, R. H., ... & Kamerman, P. R. (2015). Pharmacotherapy for neuropathic pain in adults: a systematic review and meta-analysis. *The Lancet Neurology*, *14*(2), 162-173.

Geneen, L. J., Moore, A. R., Clarke, C., Martin, D., Colvin, L. A., & Smith, B. H. (2017). Physical activity and exercise for chronic pain in adults: an overview of Cochrane Reviews. *The Cochrane database of systematic reviews*.

Hilton, L., Hempel, S., Ewing, B. A., Apaydin, E., Xenakis, L., Newberry, S., ... & Maglione, M. A. (2016). Mindfulness meditation for chronic pain: systematic review and meta-analysis. *Annals of Behavioral Medicine*, *51*(2), 199-213.

Liegl, G., Boeckle, M., Leitner, A., & Pieh, C. (2016). A meta‐analytic review of brief guided self‐help education for chronic pain. *European Journal of Pain*, *20*(10), 1551-1562.

Mehta, S., Peynenburg, V. A., & Hadjistavropoulos, H. D. (2019). Internet-delivered cognitive behaviour therapy for chronic health conditions: a systematic review and meta-analysis. *Journal of behavioral medicine*, *42*(2), 169-187.

Papaleontiou, M., Henderson Jr, C. R., Turner, B. J., Moore, A. A., Olkhovskaya, Y., Amanfo, L., & Reid, M. C. (2010). Outcomes associated with opioid use in the treatment of chronic noncancer pain in older adults: a systematic review and meta‐analysis. *Journal of the American Geriatrics Society*, *58*(7), 1353-1369.

Peerdeman, K. J., van Laarhoven, A. I., Keij, S. M., Vase, L., Rovers, M. M., Peters, M. L., & Evers, A. W. (2016). Relieving patients' pain with expectation interventions: a meta-analysis. *Pain*, *157*(6), 1179-1191.

Reinecke, H., Weber, C., Lange, K., Simon, M., Stein, C., & Sorgatz, H. (2015). Analgesic efficacy of opioids in chronic pain: recent meta‐analyses. *British journal of pharmacology*, *172*(2), 324-333.

Turk, D. C., Wilson, H. D., & Cahana, A. (2011). Treatment of chronic non-cancer pain. *The Lancet*, *377*(9784), 2226-2235.

Veehof, M. M., Oskam, M. J., Schreurs, K. M., & Bohlmeijer, E. T. (2011). Acceptance-based interventions for the treatment of chronic pain: a systematic review and meta-analysis. *PAIN®*, *152*(3), 533-542.

Vickers, A. J., Vertosick, E. A., Lewith, G., MacPherson, H., Foster, N. E., Sherman, K. J., ... & Acupuncture Trialists' Collaboration. (2017). Acupuncture for chronic pain: update of an individual patient data meta-analysis. *The Journal of Pain*.

Wieland, L. S., Skoetz, N., Pilkington, K., Vempati, R., D'Adamo, C. R., & Berman, B. M. (2017). Yoga treatment for chronic non‐specific low back pain. *The Cochrane Library*.

Williams, A. C. D. C., Eccleston, C., & Morley, S. (2012). Psychological therapies for the management of chronic pain (excluding headache) in adults. *The cochrane library*.