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1 Psychosocial Group Therapy Interventions for Patients with Physical Disabilities A Scoping Review  
2 of Implementation Considerations

3

#### 4 **Abstract**

5 **Objective:** Group therapy is an intervention that that has been well-studied in patients with  
6 medical illness and shown to optimize patients' wellbeing and mental health resource utilization.

7 **However, its implementation and effectiveness have not been adequately studied in those with**  
8 **physical disabilities.** This review addresses current gaps by synthesizing the literature to examine  
9 implementation considerations in the use of psychosocial group therapy for anxiety and  
10 depression in individuals with physical disabilities.

11 **Methods:** This review adhered to Arksey and O'Malley's methodological framework and the  
12 Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping  
13 Reviews Checklist. Studies were identified through MEDLINE, EMBASE, PSYCINFO and CINAHL.  
14 Included studies were qualitative, quantitative, or mixed methods research on participants with a  
15 physical disability, and undergoing psychosocial group therapy to address anxiety/depression.

16 **Results:** Fifty-five studies were included in the review. The most common physical disabilities  
17 were multiple sclerosis (n=31) and Parkinson's disease (n=13). Group Cognitive Behavioural  
18 Therapy was the most commonly used intervention, facilitated by individuals with formal mental  
19 health training. A majority of therapy sessions included cohorts of up to 10 patients, and occurred  
20 weekly. Almost half of the studies (n=27) reported high adherence rates (80-99%), and a large  
21 proportion found group therapy led to improvements in their samples on a range of outcomes.

22 **Conclusion:** Group therapies to address anxiety and depression are diverse, widely used,  
23 effective and well adhered to. This review may help practitioners develop, implement and

24 evaluate group programming for individuals with physical disabilities to address anxiety and  
25 depression.

26 **Keywords:** Physical Disability; Psychosocial Group Therapy; Anxiety; Depression; Implementation

### 27 **Impact**

- 28 • This unique review synthesizes current research on psychological interventions for patients  
29 with physical disabilities, while providing an overview of implementation considerations for  
30 such interventions.
- 31 • Findings may help mental health and rehabilitation practitioners develop, implement and  
32 evaluate group programming for individuals with physical disabilities to address anxiety and  
33 depression.

34

### 35 **Introduction**

36 Physical disabilities refer to impairments that result in compromised physical functioning,  
37 which may include impairments in one's mobility, coordination, stamina, and/or dexterity.  
38 Physical disabilities may result from traumatic injuries (i.e., spinal cord injury [SCI], limb loss),  
39 nervous system disorders (i.e. amyotrophic lateral sclerosis [ALS]), or autoimmune diseases (i.e.,  
40 multiple sclerosis [MS]). Physical disabilities stemming from various aetiologies share the  
41 commonality of notable comorbidity rates with depression and/or anxiety due to sudden changes  
42 in function and ability (Noh et al., 2016; Robinson-Whelen et al., 2014; Turner & Beiser, 1990; U.S.  
43 Department of Health and Human Services et al., 2010). Additionally, structural neurological  
44 changes have also been shown to be related to mood regulation in certain physical disabilities  
45 (Lian et al., 2019). The prevalence of depression has been found to be as high as 60% in  
46 individuals with lower limb loss, (Fleury et al., 2013) around 22% for individuals after a SCI  
47 diagnosis (Williams & Murray, 2015), and a lifetime prevalence of between 31-35% among those

48 with MS (Boeschoten et al., 2017). High rates of anxiety have similarly been found across disability  
49 groups, with the prevalence of anxiety ranging between 25.7%-57% for traumatic limb loss  
50 (McKechnie & John, 2014), 15%-32% for SCI (Le & Dorstyn, 2016), and 20%-45% for MS (Filser et  
51 al., 2022). Given the high rates of depression and anxiety among populations with a physical  
52 disability, there is increasing demand for mental health interventions to support these individuals  
53 within hospital settings (Cree et al., 2020). It must be noted, however, that this scoping review  
54 includes studies that focus on a range of disabling long term physical health conditions (i.e. MS,  
55 limb loss, etc.).

56           Group therapy is a form of psychotherapy whereby one or two therapists or trained  
57 facilitators work with a group of patients simultaneously (Centre for Addiction and Mental Health,  
58 n.d.; Fine et al., 1991; McCrone et al., 2005; Siskind et al., 2008). According to a 2020 systematic  
59 review and meta-analysis, group psychotherapy was found to effectively reduce symptoms  
60 associated with anxiety disorders compared to control groups, although no significant differences  
61 existed in comparison to individual therapy (Barkowski et al., 2020). Similarly, a 2014 systematic  
62 review and meta-analysis found that group cognitive behavioural therapy (CBT) was more  
63 effective in treating depression compared to control conditions, such as treatment as usual,  
64 computerized CBT and 'middle-intensity group-based interventions such as relaxation training'  
65 (Okumura & Ichikura, 2014). Though findings in the general population outline positive effects of  
66 group therapy, we would like to examine how group therapy has been used in populations with  
67 physical disabilities, as there is limited preliminary evidence on this topic (Srivastava &  
68 Chaudhury, 2014).

69           There exist a wide range of group therapies which may incorporate elements of  
70 psychoeducation, social support, skill-building and/or interpersonal change. These modalities aim  
71 to improve self-efficacy, enhance coping and decrease isolation using common therapeutic

72 factors (Yalom & Leszcz, 2005). Group therapy aligns with a stepped-care delivery approach, in  
73 which less resource-intensive interventions are used initially, and higher intensity interventions  
74 are employed as required (Meuldijk & Wuthrich, 2019). This offers an innovative way to optimize  
75 the balance between mental health outcomes and resource utilization in healthcare (Andrews,  
76 2006; National Institute for Health and Care Excellence, 2003). Importantly, there are findings that  
77 group approaches for people with physical disabilities are found to be enjoyable, and simply being  
78 part of a group itself may be the main driver for positive change (Zinman et al., 2014). However,  
79 further evidence is required to demonstrate group therapy's feasibility, acceptability, and  
80 potential effectiveness for individuals with a physical disability (Meuldijk & Wuthrich, 2019).

81 No scoping review to date has summarized the main characteristics of existing  
82 psychosocial group therapy programs for persons with physical disabilities (i.e., duration,  
83 frequency, facilitator characteristics, etc.) nor the main factors that may influence successful  
84 implementation. We aim to map the literature on what is known about the implementation of  
85 psychosocial group therapy in patients with physical disabilities to address depression and/or  
86 anxiety, as these are commonly measured mental health outcomes among individuals with a  
87 physical disability (Fleury et al., 2013; Horgan & MacLachlan, 2004; Padovani et al., 2015).

88

## 89 **Methods**

90 According to Arksey and O'Malley's methodological framework, scoping reviews are  
91 useful to 'map the key concepts that underpin a field of research' (Arksey & O'Malley, 2005). For  
92 the present review, the five-step scoping review framework proposed by Arksey & O'Malley  
93 (2005) and subsequent revisions by Levac, Colquhoun and O'Brien (2010) were followed. The  
94 Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping

95 Reviews Checklist (PRISMA-ScR) (Tricco et al., 2018) was also used. This review was preregistered  
96 on the Open Science Framework platform [link blinded for peer-review].

97

#### 98 *Stage 1: Identifying Research Questions*

99           The guiding research question for this review is: What is known about the  
100 implementation of psychosocial group therapy in patients with physical disabilities to address  
101 depression and anxiety? The development of this research question emerged from an inter-  
102 professional team providing care to inpatients and outpatients with physical disabilities (i.e.,  
103 trauma, limb loss, etc.) undergoing rehabilitation. To ensure that key implementation  
104 considerations were captured by this review, the Consolidated Framework for Implementation  
105 Research (CFIR) (Damschroder et al., 2009) was used as a guiding theoretical model.  
106 Implementation science frameworks, such as the CFIR, are useful to effectively map key  
107 contextual factors related to the introduction and delivery of a new intervention (Nilsen, 2015).

108

#### 109 *Stage 2: Identifying Relevant Studies*

110           The Population Concept Outcome (PCO) model (Peters, 2020) was used to help refine the  
111 study identification stage, which included studies that evaluated individuals with an adult-onset  
112 physical disability (population) undergoing an evidence-based or non-evidence based psychosocial  
113 group intervention, delivered in-person (concept) for anxiety and depression (outcome). In  
114 addition to depression and anxiety, we also documented secondary outcomes relevant to helping  
115 individuals manage symptoms of depression and anxiety, such as coping skills, self-management  
116 strategies related to disability, fatigue, pain, sleep hygiene, etc.

117           Published peer-reviewed papers written in English between 2000 to the date the search  
118 was run (June, 30, 2021) were considered for inclusion. These included quantitative, qualitative

119 and mixed-methods studies. Systematic, scoping and literature reviews were excluded, as were  
120 conference abstracts, book commentaries or chapters. Four major electronic databases  
121 (MEDLINE, EMBASE, PSYCINFO and CINAHL) were searched to identify relevant studies with the  
122 assistance of an academic librarian. Results from each database were exported to Endnote and  
123 de-duplication occurred using an established framework (Bramer et al., 2016). These searches  
124 were supplemented by grey literature searches, as well as hand searching of the reference lists of  
125 included studies and key journals. See Appendix 1 for our MEDLINE search strategy. Of note, we  
126 utilized a published search strategy specific to SCI that drew from a 'gold standard' search  
127 strategy for identifying spinal cord damage (Cadel et al., 2020).

128

### 129 *Stage 3: Selection of Relevant Studies*

130 Two independent reviewers screened titles, abstracts and full texts. Pilot testing was  
131 conducted whereby the first 100 publications were screened. The two independent reviewers  
132 achieved an interrater agreement of 85%, and included articles were organized for full-text  
133 screening. The team used Covidence online software (Babineau, 2014) to guide the screening and  
134 study selection process.

135

### 136 *Stage 4: Charting the Relevant Data*

137 Included studies were charted by two independent reviewers, using a calibrated data  
138 extraction instrument template informed by a previous scoping review evaluating intervention  
139 implementation considerations (Kokorelias et al., 2021). A pilot extraction occurred whereby the  
140 two reviewer's trialed the extraction template for up to five sources to ensure all relevant results  
141 were extracted. (See Table 1- Study Characteristics, for a high level summary of each study; See  
142 Supplemental Table 1 for detailed summary of Study Characteristics).

143

144 *Stage 5: Collating, Summarizing and Reporting the Results*

145 For our quantitative data, we employed simple descriptive methods, and for qualitative  
146 data, we used a descriptive approach with conventional content analysis (Hsieh & Shannon,  
147 2005). The findings from the scoping review were contextualized within the CFIR (Damschroder et  
148 al., 2009). Broadly, the CFIR highlights the importance of considering a number of factors across  
149 five domains: a) intervention (i.e., strength & quality); b) outer setting (i.e., patients' needs &  
150 resources); c) inner setting (i.e., culture, leadership engagement); d) individual characteristics; and  
151 e) process (i.e., plan, evaluate & reflect) (Damschroder et al., 2009). We present our account of  
152 findings in a narrative format with accompanying tables and figures mapping characteristics of  
153 studies, participants, and key findings. At times, quotations are used to reflect wording as it  
154 appeared in a given study.

155

156 **Results**

157 Our search in July 2021 generated 16,047 results. Following de-duplication, there were  
158 10,128 results. After title and abstract screening, 90 full text articles were retrieved and reviewed,  
159 of which 55 were included in the final review (See Figure 1 – PRISMA flow diagram).

160

161 **Characteristics of included studies**

162 Of 55 studies, there were 22 randomized controlled trials (RCTs), 1 clinical trial, 15  
163 intervention studies, two feasibility studies, four pilot studies, four quasi-experimental designs,  
164 four mixed-methods studies, and one qualitative study. There was a prospective cohort  
165 controlled trial design and a prospective repeated-measures cohort design. Twenty-five studies  
166 were from Europe and 19 were spread across North America, including three from Canada



167 (Berwald & Houtstra, 2002; Blair et al., 2017; Morrow et al., 2021). There were seven studies from  
168 Australia, four from Asia, and one from South America. The sample size ranged from 4 -1,376 and  
169 the total number of participants from all the studies in this review was 4,394 (M=79.89) (See  
170 Table 1—Study Characteristics).

### 171 **Participant characteristics**

172 Within physical disability, 49 studies included participants from a single diagnostic  
173 category (i.e. SCI), while 6 studies included participants with multiple physical disabilities (i.e. SCI,  
174 MS, Parkinson’s disease). The most common physical disabilities reported were MS (n=30),  
175 Parkinson’s disease (n=13), and SCI (n=7). Physical disabilities less frequently explored were  
176 musculoskeletal disorders (n=1) (Hassouneh et al., 2013), amputation (n=1) (Ehde & Jensen,  
177 2004), arthritis (n=1) (Hassouneh et al., 2013), and osteoporosis (n=2) (Berwald & Houtstra, 2002;  
178 Vail & Xenakis, 2007). Health comorbidities were explicitly mentioned in the form of cognitive  
179 dysfunction (i.e. impaired memory, attention, executive function, etc.) (Bilgi et al., 2015; Guest et  
180 al., 2015; Hanssen et al., 2016; Pakenham et al., 2018), traumatic brain injury (Craig et al., 2017;  
181 Guest et al., 2015) and unspecified conditions (Anderson et al., 2017; Navarta-Sanchez et al.,  
182 2020). Other comorbidities included chronic illness (Canivet et al., 2016), as well as “psychiatric  
183 diagnosis” (Berardelli et al., 2018) and “serious illness” (Fitzpatrick et al., 2010) as being present  
184 among participants with physical disabilities. Baseline levels of anxiety and depression were  
185 reported in 43 studies. Of these, 32 studies had participants that experienced, at minimum, mild  
186 anxiety and/or depression. The remaining studies included participants that did not meet the  
187 diagnostic threshold for anxiety and/or depression.

188 Seventeen studies reported participant race, with majority of participants being White.  
189 One study did not report specific race but rather “minority” status (Plow et al., 2009). All studies  
190 reported participant age, which ranged from 22 - 81 years old. All studies reported the sex of

191 participants and the proportion of females included in these studies ranged from 2.5% - 100%,  
192 with the majority of participants across studies being female. Employment status was reported in  
193 29 studies, and varied to classify participants who were unemployed, on disability income  
194 assistance, as well as working part-time or full-time. Thirty-nine studies reported on the education  
195 level of participants, with most having graduated from high school. Four studies recruited  
196 participants that were inpatients from rehabilitation programs (Craig et al., 2017; Duchnick et al.,  
197 2009; Guest et al., 2015; Hanssen et al., 2016), 30 studies recruited outpatients or individuals that  
198 attended clinic or hospitals (i.e. MS clinic and 19 recruited from the community or community  
199 organizations (i.e. the MS Society), while 10 studies did not specify from where participants were  
200 recruited (Daniel & Manigandan, 2005; Feeney et al., 2005; Hart et al., 2005; Hughes et al., 2004;  
201 Humphreys et al., 2013; Jalon et al., 2013; Langenmayr & Schottes, 2000; Mohr et al., 2004; Mohr  
202 et al., 2003; Vail & Xenakis, 2007).

203

#### 204 **Setting**

205 All of the 55 studies delivered psychosocial group therapy in person. Twenty three studies  
206 took place in clinical settings such as university hospitals, outpatient clinics, rehabilitation centers,  
207 and rehabilitation hospitals. Six studies took place in a community or non-clinical setting (Advocat  
208 et al., 2016; Calandri et al., 2017), such as in a local community partner office (Hassouneh et al.,  
209 2013), centers for Independent Living (Hughes et al., 2004), school hall or local library (Jalon et  
210 al., 2013; Pakenham et al., 2018). Many of the studies (26 out of 55) did not specify where groups  
211 took place.

#### 212 **Intervention characteristics**

213 Of the 55 studies, only 6 described multi-modal interventions that included group  
214 sessions alongside 1:1 rehabilitation (Guo et al., 2009), education (Canivet et al., 2016; Kopke et

215 al., 2009), exercise (Plow et al., 2009), as well as services from a Centre of Independent Living  
216 (Hughes et al., 2004). One study featured multiple group components, such as cognitive  
217 behavioral strategies, relaxation training, and physical exercises (Tesar et al., 2003). Of the single  
218 component studies, most (n= 25) were CBT interventions or based on CBT principles, (Berardelli et  
219 al., 2018; Borghi et al., 2018; Calandri et al., 2017; Craig et al., 2017; das Nair et al., 2016; Feeney  
220 et al., 2005; Hadinia et al., 2017; Hart et al., 2005; Tesar et al., 2003; Thomas et al., 2010; Troeung  
221 et al., 2014; Visschedijk et al., 2004). There were four comparative interventions evaluating  
222 differences between individual CBT, sertraline and group psychotherapy (Hart et al., 2005), CBT,  
223 Sertraline, and supportive-expressive group psychotherapy (SEGP) (Mohr et al., 2001; Mohr et al.,  
224 2004; Mohr et al., 2003), coping effectiveness training (CET) and supportive group therapy (SGT)  
225 (Duchnick et al., 2009), and an Energy Conservation Program and Peer Support Group (Jalon et al.,  
226 2013). See Table 1 - Study Characteristics, for a breakdown of the psychosocial group  
227 programming used for each study, and Table 2 - Intervention Descriptions.

228

## 229 **Content**

230 Out of the 55 studies, 17 studies incorporated components of homework given to  
231 participants. Most of these included practicing exercises and skills learned during psychosocial  
232 group therapy sessions (Hadinia et al., 2017), such as relaxation exercises (Graziano et al., 2014),  
233 mindfulness practice (Advocat et al., 2016), self-guided homework (Anderson et al., 2017) and  
234 cognitive exercises (Bilgi et al., 2015).

235 The 13 group CBT studies (Berardelli et al., 2018; Borghi et al., 2018; Calandri et al., 2017;  
236 Craig et al., 2017; das Nair et al., 2016; Feeney et al., 2005; Graziano et al., 2014; Hadinia et al.,  
237 2017; Hart et al., 2005; Tesar et al., 2003; Thomas et al., 2010; Troeung et al., 2014; Visschedijk et  
238 al., 2004) typically targeted four main areas: illness awareness, adherence to treatment, early

239 detection of motor and non-motor symptoms and lifestyle regularity. In addition to CBT, many  
240 group modalities centered on Mindfulness group therapy practices (Advocat et al., 2016; Cash et  
241 al., 2016; Dissanayaka et al., 2016; Fitzpatrick et al., 2010; Morrow et al., 2021). These sessions  
242 typically began with 5-20 minutes of mindfulness practice led by the program facilitator, followed  
243 by open discussions regarding participants' thoughts and perceptions of the program.  
244 Psychoeducational groups were also commonly reported (Boosman et al., 2011; Canivet et al.,  
245 2016; Ehde & Jensen, 2004; Guo et al., 2009; Kopke et al., 2009; Navarta-Sanchez et al., 2020),  
246 and was typically characterized by themed lectures on topics such as general information about  
247 physical disabilities, community resources, relapse management as well as coping strategies in  
248 face of daily disease-related difficulties. Less frequently utilized group modalities such as CET,  
249 Dialectical Behavioural Therapy (DBT), SGT, and Supportive Expressive Group Therapy (SEGT) are  
250 noted in Table 1- Study Characteristics.

251

### 252 **Group facilitators**

253 For CBT-based interventions, group facilitators were most frequently psychologists  
254 (n=13), as well as allied health professionals with additional mental health training such as  
255 physical therapists, nurses, and social workers. Mindfulness group therapy was guided by  
256 facilitators including clinical psychologists and registered nurses with specialized mindfulness  
257 training. Psychoeducational group facilitators were typically comprised of a multidisciplinary team  
258 of professionals such as social workers, OT's, PT's, nurses and speech pathologists along with  
259 trained patient experts. Facilitators within the less commonly utilized group therapy modalities  
260 were comprised of individuals with lived experience and trained professionals from community  
261 organizations, post-doctoral clinical neuropsychology fellows, post-graduate clinical psychology  
262 students, clinical psychologists, and trained peer facilitators.

263

**264 Frequency and duration of psychosocial group therapy**

265 Two studies featured psychosocial group interventions that occurred multiple times a  
266 week (Blair et al., 2017; Daniel & Manigandan, 2005). Psychosocial group therapy was offered on  
267 a biweekly basis in two studies (Sproesser et al., 2010; Visschedijk et al., 2004). One study offered  
268 a combination of weekly and monthly sessions (Dissanayaka et al., 2016), and one study involved  
269 a one-time group therapy session (Kopke et al., 2009). Lastly, 10 studies did not specify the  
270 frequency of psychosocial group therapy sessions (Bilgi et al., 2015; Borghi et al., 2018; Calandri et  
271 al., 2017; Canivet et al., 2016; Forman & Lincoln, 2010; Graziano et al., 2014; Guo et al., 2009;  
272 Humphreys et al., 2013; Lincoln et al., 2011; Shahkaram et al., 2020). The remaining 39 studies  
273 offered sessions once a week.

274 Among studies that reported the duration of each psychosocial group therapy session,  
275 duration ranged from a minimum of 45 minutes (Kopke et al., 2009) to a maximum of 4 hours  
276 (Canivet et al., 2016). The majority of studies (n=28) spanned between 1-2 months (inclusive) for  
277 length of treatment/intervention.

278

**279 Size of psychosocial group therapy cohorts**

280 A large proportion of the studies (n=30) did not report the size of each individual group  
281 cohort (i.e. number of participants in each group session), but rather, reported the total size of  
282 the intervention cohort. Of those that did report the size of each group cohort, most (n=23) were  
283 comprised of up to 10 participants per group session. Of these, 11 studies had between three to  
284 six group members, and seven studies between 7 to 10 group members. Three studies specified  
285 group containing between three and 9 members, and two reported broad ranges of between four

286 to 10, and “up to 10”, respectively. One study had between 15-20 people in each group (Navarta-  
287 Sanchez et al., 2020) and another had 7-12 participants (Pakenham et al., 2018).

288

### 289 **Participant adherence to psychosocial group therapy intervention**

290           Nine studies did not report adherence to psychosocial group therapy (Bilgi et al., 2015;  
291 Daniel & Manigandan, 2005; Feeney et al., 2005; Humphreys et al., 2013; Langenmayr & Schottes,  
292 2000; Lincoln et al., 2011; Malekzadeh et al., 2020; Shahkaram et al., 2020; Tesar et al., 2003). Of  
293 those that did, the majority (n=15) reported that 80-89% of participants completed an entire  
294 group intervention (Berwald & Houtstra, 2002; Borghi et al., 2018; Calandri et al., 2017; Carletto  
295 et al., 2017; Cash et al., 2016; Graziano et al., 2014; Hart et al., 2005; Hughes et al., 2006; Hughes  
296 et al., 2004; Mohr et al., 2001; Mohr et al., 2003; Plow et al., 2009; Sinclair & Scroggie, 2005;  
297 Trend et al., 2002; Vail & Xenakis, 2007). Twelve reported that 90-99% of participants completed  
298 their participation in a psychosocial group therapy program, while seven studies reported that  
299 100% of participants adhered to the assigned group intervention (Anderson et al., 2017; Bilgi et  
300 al., 2015; Canivet et al., 2016; Craig et al., 2017; Guest et al., 2015; Guo et al., 2009; Hadinia et al.,  
301 2017). The remaining studies reported adherence rates between 50-59% (n=2) (das Nair et al.,  
302 2016; Thomas et al., 2010), 60-69% (n=1) (Forman & Lincoln, 2010), and 70-79% (n=5) (Advocat et  
303 al., 2016; Blair et al., 2017; Ehde & Jensen, 2004; Jalon et al., 2013; Visschedijk et al., 2004). One  
304 study reported that 93% patients attended 70% of intervention sessions (Navarta-Sanchez et al.,  
305 2020), and another reported that 75.7% of participants attended 7 of 8 sessions (Giovannetti et  
306 al., 2020). One study explained adherence in general terms by stating, “the majority of  
307 participants attended all three sessions”(Rigby et al., 2008). Of the studies reporting low  
308 adherence to psychosocial group therapy, reasons included a lack of group cohesion, having the

309 alternative option of engaging in individual therapy, being a 'minority' in group, and travel  
310 difficulties.

311

### 312 **Outcome Measures**

313 The primary outcomes assessed in 36 studies included anxiety and depression. Of these,  
314 all utilized a validated measure such as the Hospital Anxiety and Depression Scale (HADS), Positive  
315 and Negative Affect Scale, the Beck Depression Inventory (BDI) and the State and Trait Anxiety  
316 Inventory (STAI) among others.

317 Secondary outcome measures were reported in 19 studies (including some that listed  
318 depression and anxiety as secondary measures) that have relevance to depression and anxiety,  
319 such as self-efficacy (e.g., Multiple Sclerosis Self-Efficacy Scale), coping (e.g., Brief Coping) and  
320 fatigue (e.g., Brief Fatigue Inventory).

321

### 322 **Patient Outcomes**

#### 323 *Anxiety and Depression*

324 Thirty-six studies examined anxiety and depression among participants who participated  
325 in psychosocial group therapy. Of these, only one study did not find that depression and/or  
326 anxiety decreased (Feeney et al., 2005) in response to group therapies such as group CBT, CET,  
327 and SGT. Instead, this study reported mixed findings where half the sample (two out of four)  
328 experienced a 'clinically significant' decrease in depression, while the other participants  
329 experienced no change, and an increase in depression following psychosocial group therapy. The  
330 remaining studies reported decreases in anxiety and/or depression in response to group therapy,  
331 22 of which demonstrated statistically significant results.

332 Discrepancies in these findings emerged indicating that individual therapy resulted in  
333 greater decreases in symptoms of anxiety/and or depression, or that several forms of  
334 psychosocial group therapy were not equally as effective in improving symptoms. For instance, in  
335 a pre-post study, findings revealed that individuals who attended individual CBT (n=11), reported  
336 better outcomes on the Beck Depression Inventory-II (BDI-II) compared to those who received  
337 group CBT (n=10) (das Nair et al., 2016). In a pre-post survey, results indicated that SEGT was  
338 'significantly' less effective in decreasing BDI scores among individuals with MS (n=22), when  
339 compared to non-group treatments such as sertraline injections (n=21) ( $\beta=5.14$ ,  $p=0.047$ ) or  
340 individual CBT (n=20) ( $\beta=7.41$ ,  $p=0.0032$ ) (Mohr et al., 2001). By contrast, another pre-post study  
341 revealed that individuals with Parkinson's disease (n=10) who attended group CBT experienced a  
342 30% decrease in anxiety scores, and a 22% decrease in depression scores (Berardelli et al., 2018).  
343 However, these decreases were not evident among patients with Parkinson's disease who  
344 attended a psychoeducational group (n=10). Similarly, a pre-post study found that patients who  
345 attended CET and SGT (n=40) both experienced reductions in anxiety ( $p<0.001$ ) and depression  
346 ( $p<0.005$ ), but that these reductions were achieved with fewer CET sessions (Duchnick et al.,  
347 2009).

348

#### 349 *General Psychological Health*

350 Studies also found that group therapy improved general psychosocial health in the form  
351 of improved mental health (n=3) (Calandri et al., 2017; Hughes et al., 2006; Plow et al., 2009),  
352 increased psychological wellbeing (n=3) (Graziano et al., 2014; Hart et al., 2005; Malekzadeh et  
353 al., 2020), decreased psychological disease-related impact (n=1) (Anderson et al., 2017),  
354 decreased mental health disorders (n=1) (Carletto et al., 2017), and improved mood and affect  
355 (n=2) (Guo et al., 2009; Sinclair & Scroggie, 2005). Variation related to group and participant



356 factors were highlighted in these findings, specifically that differences in psychological health  
357 were associated with gender (Graziano et al., 2014), and/or group assignment (Carletto et al.,  
358 2017) (Hughes et al., 2006).

359

#### 360 *Implementation Considerations*

361           When contextualized within the CFIR's 'characteristics of the intervention', this review's  
362 findings suggest there are several features that can enable successful implementation of group  
363 interventions for physical disability. First, the review identified a diverse range of group  
364 approaches used (i.e. Psychoeducation, DBT, CBT, SEGT) across different settings (inpatient,  
365 outpatient, community). Given the large number of studies included in this review, as well as  
366 others studies examining group therapies in other disability and non-disability groups, there exists  
367 a wide range of options in terms of theoretical approach and modality (CBT, SEGT, etc.), structure  
368 (group size, duration, facilitator qualifications), and content (diversity of topics that can be  
369 addressed). Such variability may allow for greater flexibility and scalability (up or down)  
370 depending on available resources and local contextual factors.

371           With regard to CFIR 'Outer Setting' considerations, the sub-construct of 'patient needs  
372 and resources' are best illustrated by our findings regarding the high rates of adherence found  
373 across the studies in our review. These high rates were found across both inpatient, outpatient  
374 and community settings, and may indicate that a group approach is accessible and acceptable to  
375 patients with physical disabilities. Although satisfaction rates cannot be fully elucidated from our  
376 review, the rates of adherence may imply that the majority of participants were satisfied with the  
377 programs given the low dropout rates and high number of positive outcomes associated with  
378 them.

379 In terms of the CFIR construct, ‘Characteristics of individuals’, our review identified a  
380 broad range of professionals who can deliver a group-based interventions (psychologists,  
381 researchers, allied health professionals, trained peers). A large number of group facilitators  
382 identified in this review had some form of mental health training, which suggests these are  
383 individuals who are qualified (or could be certified) to deliver psychosocial group therapy  
384 interventions. As a result, they likely possess both the required skills as well as an appreciation of  
385 the importance of delivering needed mental health supports to their respective target  
386 populations (‘Knowledge and Beliefs about the Intervention’; ‘Self-efficacy’).

387 The CFIR ‘inner setting’ highlights a number of issues related to the ‘state of the  
388 organization’, which may include its structural characteristics, how well it is managed internally,  
389 as well as the overall organizational culture (Damschroder et al., 2009). These are issues that  
390 were not immediately apparent from the studies reviewed but a few factors could be  
391 extrapolated in relation to this CFIR construct. First, group therapy was offered in a wide variety  
392 of clinical settings (acute care, community-based, etc.), delivered independently (recruiting from a  
393 single site) or in conjunction with community services (i.e. MS Society). One study specifically  
394 noted that hybrid recruitment is more reflective of “common practice” whereby participants are  
395 not exclusively recruited through specialized clinical centres (Kopke et al., 2009). In some  
396 instances, participants identified via clinical services participated in community-based group  
397 interventions (Jalon et al., 2013). Hence, these identified features suggest that an optimal group-  
398 based program should be framed within an environment that recognizes the importance of  
399 broader social determinants, including mental health needs, thus enabling a climate for success  
400 (Implementation climate, culture, leadership engagement; tensions for change). One recruitment  
401 strategy, reflected in two studies (Hughes et al., 2006; Hughes et al., 2004) was to engage local  
402 champions to raise awareness about the benefits of group-based programs not only for the

403 participants themselves but also in supporting long-term, systemic sustainability given the  
404 potential cost-effectiveness of these interventions. This relates to the CFIR sub-construct of  
405 'identify local champions' from the larger 'Process' domain.

406 Finally, there are a number of important considerations related to the CFIR 'process'  
407 construct. To support the adoption and uptake of group therapies to meet the psychosocial needs  
408 of people with disabilities, a number of the studies used validated outcome measures to  
409 determine the impact of these programs on their patients (e.g., BDI, STAI). The use of validated  
410 measures under trial conditions is an important consideration to demonstrate program  
411 effectiveness (reflecting and evaluating), which may help to sway decision-makers and funders to  
412 support and sustain group therapy programs.

413

#### 414 **Discussion and Recommendations**

415 The present scoping review examined the implementation of psychosocial groups in  
416 patients with physical disabilities to address depression and/or anxiety. Based on the results, it  
417 appears that psychosocial group therapy for persons with a physical disabilities is highly feasible  
418 and adaptable, taking into account a variety of local contexts. The most commonly used approach  
419 was CBT, with many studies using this approach demonstrating a significant outcome. However,  
420 the findings on the benefits of group therapy for people with disabilities on a whole are mixed,  
421 and further reflection on how they are designed and implemented may lead to some best  
422 practices for group therapy as well as a stronger evidence base highlighting their effectiveness.

423 Results surrounding the CFIR 'characteristics of the intervention' demonstrate a great  
424 deal of variability and 'adaptability' in the application of psychosocial group therapy, suggesting  
425 that it can be tailored in a number of ways to meet local, contextual needs (Damschroder et al.,  
426 2009). Given the adaptability and scalability of the included psychosocial group therapy  
427 approaches, there is a 'relative advantage' to adopting a group approach compared to solely using

428 more resource-intensive, individual interventions. There are a number of studies illustrating the  
429 cost-effectiveness of psychosocial group therapy compared to one-to-one interventions (Fine et  
430 al., 1991; McCrone et al., 2005; Siskind et al., 2008). However, this does not mean that one-to-  
431 one interventions for persons with serious psychiatric illness (or with other concerns, i.e. social  
432 anxiety) should not be provided where needed, but group interventions may serve as an interim  
433 intervention within a stepped care model if a more resource-intensive mental health intervention  
434 is not available. Although difficult to capture, 'costs' of group interventions are important to  
435 consider for planning and implementation purposes (Damschroder et al., 2009) and attempts  
436 should be made to quantify these to support program sustainability.

437         Mental health challenges following a life-changing injury or physical disability are  
438 significant (Noh et al., 2016; Robinson-Whelen et al., 2014; Turner & Beiser, 1990; U.S.  
439 Department of Health and Human Services et al., 2010) and there is growing demand for  
440 interventions to address these needs within an increasingly resources-constrained health care  
441 system (Cree et al., 2020). Although not discussed in the papers reviewed here, future work  
442 should take into account 'external policies and incentives' that might enable the spread of group  
443 therapy interventions. For instance, one could explore whether there are insurance-based  
444 opportunities to develop group therapy programs to help support return-to-work for people with  
445 work-related physical disabilities.

446         Not all of the findings can be contextualized directly within the CFIR but a number of  
447 recommendations using this framework can guide others in the development, implementation  
448 and evaluation of their own group programs.

449

450 **Recommendations and Future Directions**

451 Many studies in this review had psychosocial group therapy sessions comprised of no  
452 more than 10 individuals per session, occurring on a weekly basis for an average duration of 1-2  
453 months. Furthermore, psychosocial group therapy facilitators were usually required to have some  
454 clinical/mental health training to guide group sessions. Although CBT was the most commonly  
455 implemented group intervention, the choice of modality should take into account the target  
456 population, available resources, facilitator expertise as well as intended outcomes. There is a  
457 paucity of evidence with regards to group programming for individuals from diverse ethnic/racial  
458 backgrounds, as most of participants in the included studies in this review were identified as  
459 “White”. Given that considerations surrounding group cohesion (having group members with  
460 similar identities, ideologies and interests) is integral to the success of a group therapy program, it  
461 is important for future research to explore how diverse identities impact the implementation of  
462 psychosocial group therapy among individuals with physical disabilities. Based on the limitations  
463 of included studies, future research may also examine employing larger sample sizes, with  
464 participants from a range of sociodemographic categories, as well as conducting longer follow up  
465 periods to detect the enduring effects of psychosocial group therapy. As well, the mobility of  
466 participants should be taken into account, since travel to attend group therapies may be more  
467 difficult for some than others; therefore affecting adherence. Overall, there are several internal,  
468 external, individual and organizational components of psychosocial group therapy interventions  
469 for individuals with physical disability that need to be accounted for, and we therefore caution  
470 against narratives that promote one-size fits all recommendations.

471

472

473

474 **Strengths and Limitations**

475           To the best of our knowledge this is the first review to synthesize the literature on  
476 psychosocial group therapy interventions for persons with physical disabilities and report on  
477 implementation considerations, a relative strength. This review is guided by well-known  
478 methodological and theoretical frameworks, and includes a comprehensive literature search  
479 including grey literature. A limitation of this review is that we only included English-language  
480 articles published since 2000, hence we may have missed relevant studies in other languages and  
481 those published earlier than 2000. Additionally, we did not include studies that delivered virtual  
482 group interventions, therefore it remains to be determined whether telehealth and virtual  
483 psychosocial therapy will have similar implementation considerations as the in-person strategies  
484 explored in this review. We are aware that methodological limitations may exist within the  
485 individual studies contained within this scoping review, however, given that this is not a  
486 systematic review, an analysis of study quality is beyond the original aim of our study.

487

#### 488 **Conclusions**

489           This review highlights that psychosocial group therapies to address depression and  
490 anxiety among individuals with physical disabilities are adaptable and readily adhered to. The  
491 program type, setting, frequency and duration of group interventions may vary, but overall, such  
492 interventions are shown to improve anxiety, depression and psychosocial health among those  
493 with physical disabilities. Group therapy aligns with a stepped-care delivery approach and offers  
494 an innovative way to optimize scarce mental health resources while improving mental health  
495 outcomes. Recommendations from this review may help mental health and rehabilitation  
496 practitioners develop, implement and evaluate group programming for individuals with physical  
497 disabilities to address anxiety and depression.

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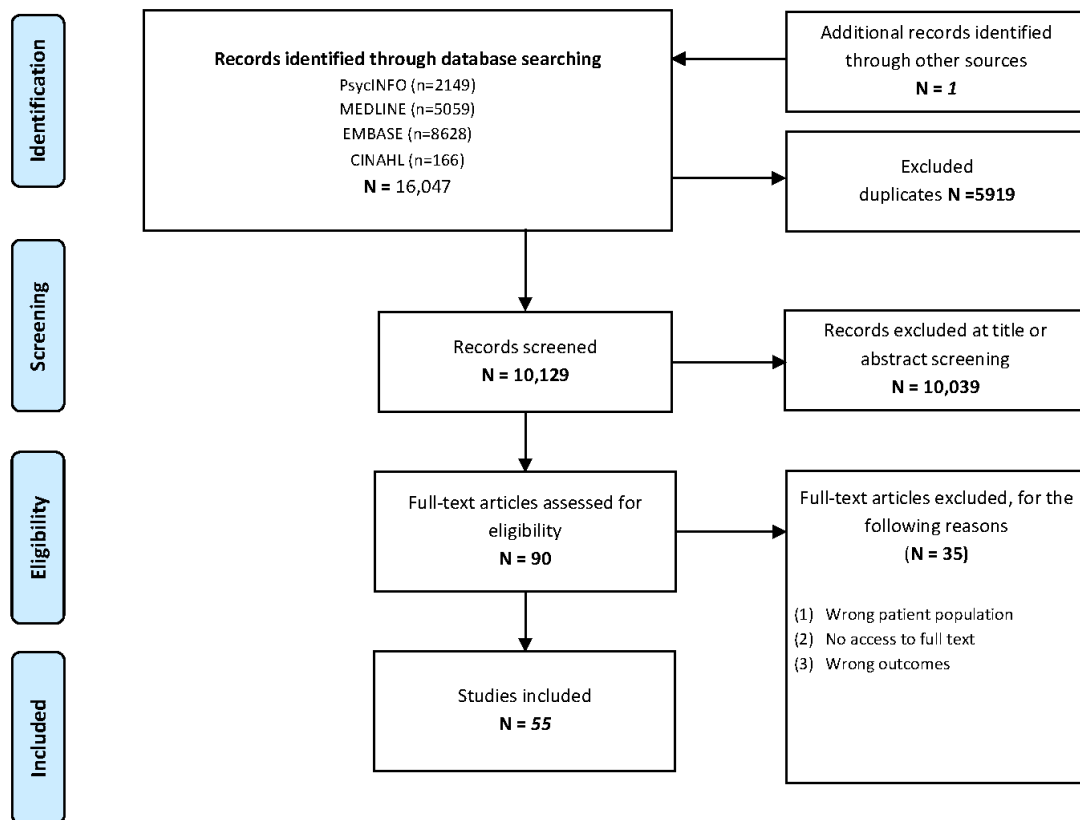
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829 **Figure 1—PRISMA Flow Diagram.** Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group  
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Table 1 - Study Characteristics

Study Characteristics	Participant characteristics	Intervention Characteristics	Implementation Considerations
<b>Advocat et al., 2016</b> <b>Country: Australia</b> <b>Design: Exploratory prospective, mixed-method, RCT</b>	<b>N=57</b> 24 Intervention / 33 Control <b>Population</b> PD <b>Gender</b> 8 M, 16 F (Intervention) 16 M, 17 F (Control) <b>Mean Age <math>\pm</math> SD</b> 62.8 $\pm$ 7.6; (Intervention) 63.7 $\pm$ 8.6 (Control) <b>Ethnicity</b> Not reported <b>Education</b> 16 Above post-secondary (Intervention) 28 Above post-secondary (Control) <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> Mindfulness-based lifestyle program, [MBT] <b>Frequency &amp; Duration</b> Weekly; 6 weeks <b>Facilitator:</b> Led by the program facilitator & author of the model	<b>Adherence</b> Fifty-seven participants completed intervention & 23 at 6-months
<b>Anderson et al., 2017</b> <b>Country: United Kingdom</b> <b>Design: Feasibility Study</b>	<b>N=21</b> <b>Population</b> MS <b>Gender</b> 4 M, 17 F <b>Mean Age <math>\pm</math> SD</b> 54.3 $\pm$ 10.5; range 36-76 <b>Ethnicity</b> 100% White <b>Education</b> Not reported <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> Help Overcome Problems Effectively (HOPE); [CBT] <b>Frequency &amp; Duration</b> Weekly; 2.5 hours per session; 12 months <b>Facilitator:</b> Two people who had previous experience of delivering self-management interventions for the MS Society in the UK	<b>Adherence</b> All 21 completed intervention (17 attended all 6 sessions; 2 attended 5 sessions & 2 attended 4 sessions)
<b>Berardelli et al., 2018</b> <b>Country: Italy</b> <b>Design: Intervention</b>	<b>N=20</b> 9 Treatment 1 / 9 Treatment 2 <b>Population</b> PD <b>Gender</b>	<b>Program Type, [Classification]</b> CBT+ <b>Frequency &amp; Duration</b> Weekly; 12 weeks <b>Facilitator</b>	<b>Adherence</b> 9/10 patients assigned to the group CBT & 9/10 patients assigned to the psychoeducational group completed program

	6 M, 3 F (Treatment 1) 5 M, 4 F (Treatment 2) <b>Mean Age <math>\pm</math> SD</b> 60.5 $\pm$ 5.6 (Treatment 1) 57.1 $\pm$ 5.3 (Treatment 2) <b>Ethnicity</b> Not reported <b>Education (years)</b> 13.7 $\pm$ 7.4 (Treatment 1) 12.4 $\pm$ 7.7 (Treatment 2) <b>Employment Status</b> Not reported	2 Psychiatrists	
<b>Bilgi et al., 2015</b> <b>Country: Turkey</b> <b>Design: Intervention</b>	<b>N=108</b> <b>Population</b> MS <b>Gender</b> 9 M, 18 F <b>Mean Age <math>\pm</math> SD</b> 36.58 $\pm$ 1.53; range 22-62 <b>Ethnicity</b> Not reported <b>Education (years)</b> 14.76 $\pm$ 2.42 <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> Group psychotherapy; [Psychotherapy] <b>Frequency &amp; Duration</b> Two times a month; 3 months (6 sessions) <b>Facilitator</b> Two Psychologists	<b>Adherence</b> Not reported
<b>Blair et al., 2017</b> <b>Country: Canada</b> <b>Design: Pre &amp; post intervention</b>	<b>N=20</b> 10 Intervention / 10 Control <b>Population</b> MS <b>Gender</b> 1 M, 9 F (Intervention) 1 M, 9 F (Control) <b>Mean Age <math>\pm</math> SD</b> 35.90 $\pm$ 9.17 (Intervention) 40.40 $\pm$ 10.15 (Control) <b>Ethnicity</b> Not reported <b>Education (years)</b> 14.50 $\pm$ 2.17 (Intervention) 13.30 $\pm$ 2.21 (control)	<b>Program Type, [Classification]</b> DBT+ <b>Frequency &amp; Duration</b> Twice weekly; 8 weeks <b>Facilitator</b> Psychologist	<b>Adherence</b> Seven participants participated in intervention, with none missing > three of 16 sessions; 2 did not participate



	<b>Employment Status</b> Not reported		
<b>Boosman et al., 2011</b> <b>Country: Netherlands</b> <b>Design: Pilot study</b>	<b>N=43</b> <b>Population</b> Neuromuscular Disease or MS <b>Gender</b> 16 M, 27 F <b>Mean Age <math>\pm</math> SD</b> 49.2 $\pm$ 12.7 <b>Ethnicity</b> Not reported <b>Education</b> 44.2% higher vocational education 51.2% less than higher vocational 4.6% not reported <b>Employment Status (%)</b> 20.9% fulltime 11.6% part-time 21.0% unemployed/house-maker/retired 41.9% unfit for work 4.6% missing	<b>Program Type, [Classification]</b> Educational intervention <sup>+</sup> <b>Frequency &amp; Duration</b> Weekly; 5 sessions, 2 hours per session <b>Facilitator</b> Occupational Therapist, Social Worker, Physiotherapist	<b>Adherence</b> Two drop outs; one because of severe disease progression, the other due to illness
<b>Borghi et al., 2018</b> <b>Country: Italy</b> <b>Design: Qualitative</b>	<b>N=41</b> <b>Population</b> MS <b>Gender</b> 14 M, 27 F <b>Mean Age <math>\pm</math> SD</b> 42.3 $\pm$ 8.5 <b>Ethnicity</b> Not reported <b>Education (years)</b> 17 at least 8 years (middle school diploma) 15 at least 13 years (high school diploma) 9 more than 13 years (degree) <b>Employment Status</b> 27 employed 14 unemployed/student/retired	<b>Program Type, [Classification]</b> CBT <sup>+</sup> <b>Frequency &amp; Duration</b> 4 sessions; 2 months <b>Facilitator</b> Psychologist	<b>Adherence</b> Five patients (12%) dropped out after the first session; all other participants completed the treatment

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<p><b>Calandri et al., 2017</b>  <b>Country: Italy</b>  <b>Design: Pre- posttest quasi-experimental design</b></p>	<p><b>N=85</b>  54 Intervention / 31 Control  <b>Population</b>  MS  <b>Gender</b>  21 M, 33 F (Intervention)  14 M, 17 M (Control)  <b>Mean Age <math>\pm</math> SD</b>  38 <math>\pm</math> 12.5 (Intervention)  32.8 <math>\pm</math> 11.9 (Control)  <b>Ethnicity</b>  Not reported  <b>Education (years)</b>  15 eight years  51 thirteen years  19 more than 13 years  <b>Employment Status</b>  42 employed (Intervention)  22 employed (Control)  12 unemployed (Intervention)  9 unemployed (Control)</p>	<p><b>Program Type, [Classification]</b>  CBT<sup>+</sup>  <b>Frequency &amp; Duration</b>  5 sessions; 2 hours per session; 6 month, 1 year follow-up  <b>Facilitator</b>  Psychologist</p>	<p><b>Adherence</b>  The majority of patients in the intervention group (80%) completed treatment; 7 people dropped out after the first or second session, whereas four patients were absent at the 6-month post-treatment</p>
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<b>Canivet et al., 2016</b> <b>Country: France</b> <b>Design: RCT</b>	<b>N=120</b> 60 Intervention / 60 Control <b>Population</b> PD <b>Gender</b> 40 M, 20 F (Intervention) 3 M, 29 F (Control) <b>Mean Age <math>\pm</math> SD</b> 62.1 $\pm$ 7.1 <b>Ethnicity</b> Not reported <b>Education</b> 28 higher education (Intervention) 20 higher education (Control) <b>Employment Status (years)</b> 13 employed (Intervention) 47 unemployed (Intervention) 9 employed (Control) 51 unemployed (Control)	<b>Program Type, [Classification]</b> Education program; [Educational Intervention] <b>Frequency &amp; Duration</b> 3 sessions; 4 hours per session; 12 months <b>Facilitator</b> Each group session was run by at least two healthcare professionals (Physician, Nurse, Physiotherapist, Speech therapist, or Psychologist)	<b>Adherence</b> Two patients (from control group) did not complete study
<b>Carletto et al., 2017</b> <b>Country: Italy</b> <b>Design: Pre and post test</b>	<b>N=90</b> 45 Intervention / 45 Control <b>Population</b> MS <b>Gender</b> 13 M, 32 F (Intervention) 13 M, 32 F (Control) <b>Mean Age <math>\pm</math> SD</b> 44.1 (9.4) (Intervention) 45.1 (9.3) (Control) <b>Ethnicity</b> Not reported <b>Education</b> Not reported <b>Employment Status</b> 31 employed (Intervention) 28 employed (Control)	<b>Program Type, [Classification]</b> BAM; [MBT]; Psycho-Educational; [Educational Intervention] <b>Frequency &amp; Duration</b> 3 hours per week; 8 weeks <b>Facilitator</b> Clinical Psychologist	<b>Adherence</b> Eleven patients dropped out during the treatment (3 from the BAM group; 7 from the PEI group)
<b>Cash et al., 2016</b> <b>Country: United States</b> <b>Design: Pilot feasibility study</b>	<b>N=39</b> (29 patients, 10 caregivers) <b>Population</b>	<b>Program Type, [Classification]</b> MBT+ <b>Frequency</b> Weekly for 1.5hr sessions; 8 weeks	<b>Adherence</b> Attrition rate for this study was 25 %, with about 54 % of those dropping out attributing it to a scheduling conflict with another medical therapy

	<p>PD</p> <p><b>Gender</b> M 53.8%, F 46.2%</p> <p><b>Mean Age <math>\pm</math> SD</b> 65.64 <math>\pm</math> 7.62</p> <p><b>Ethnicity</b> 89.7 % White</p> <p><b>Education (years)</b> 16.77 <math>\pm</math> 2.51</p> <p><b>Employment Status</b> Not reported</p>	<p><b>Facilitator</b> Delivered by a doctoral-level Clinical Psychology student under the supervision of the Co-author, a Neuropsychologist &amp; Clinical Psychologist</p>	
<p><b>Craig et al., 2017</b> <b>Country: Australia</b> <b>Design: Prospective cohort controlled trial</b></p>	<p><b>N=88</b> 50 Intervention / 38 Control</p> <p><b>Population</b> SCI</p> <p><b>Gender</b> 56% M, 44% F (Intervention) 89.47% M, 10.53% F (Control)</p> <p><b>Mean Age <math>\pm</math> SD</b> 43.5 <math>\pm</math> 17.7 (Intervention) 41.6 <math>\pm</math> 18.0 (Control)</p> <p><b>Ethnicity</b> Not reported</p> <p><b>Education</b> Not reported</p> <p><b>Employment Status pre-injury [n (%)]</b> 34 (69.39%) employed (Intervention) 27 (71.05%) employed (Control)</p>	<p><b>Program Type, [Classification]</b> CBT<sup>+</sup></p> <p><b>Frequency &amp; Duration</b> Six 2-h weekly sessions; 16 months</p> <p><b>Facilitator</b> Clinical Psychologist</p>	<p><b>Adherence</b> 100% adherence to group</p>
<p><b>Coker et al., 2019</b> <b>Country: United States</b> <b>Design: RCT</b></p>	<p><b>N=81</b> 41 Intervention / 40 Control</p> <p><b>Population</b> SCI</p> <p><b>Gender</b> 82.9% M, 17.1% F (Intervention) 80.0% M, 20.0% F (Control)</p> <p><b>Mean Age <math>\pm</math> SD</b> 48.0 <math>\pm</math> 12.8 (Intervention) 52.0 <math>\pm</math> 15.3 (Control)</p>	<p><b>Program Type, [Classification]</b> CBT<sup>+</sup></p> <p><b>Frequency &amp; Duration</b> Weekly; 2 hours per session; 6 weeks</p> <p><b>Facilitator</b> A Physical Therapist, a Nurse, a Social Worker &amp; an individual with SCI</p>	<p><b>Adherence</b> 90% adherence</p>

	<p><b>Ethnicity</b> 78% White, 22% Non-White (Intervention) 87.5% White, 12.5% Non-White (Control)</p> <p><b>Education</b> Not reported</p> <p><b>Employment Status</b> Not reported</p>		
<p><b>Daniel et al., 2005</b> <b>Country: India</b> <b>Design: Clinical trial</b></p>	<p><b>N=50</b> 25 Intervention / 25 Control</p> <p><b>Population</b> SCI</p> <p><b>Gender</b> 74% M, 26% F (Intervention) 73% M, 28% F (Control)</p> <p><b>Mean Age ± SD</b> 33.40 ± 9.46 (Intervention) 37.24 ± 12.79 (Control)</p> <p><b>Ethnicity</b> Not reported</p> <p><b>Education</b> Primary 7 (Intervention) 9 (Control) Secondary 12 (Intervention) 9 (Control) Tertiary 6 (Intervention) 7 (Control)</p> <p><b>Employment Status</b> 19 employed (Intervention) 18 employed (Control) 6 unemployed (Intervention) 7 unemployed (Control)</p>	<p><b>Program Type, [Classification]</b> Leisure intervention<sup>+</sup></p> <p><b>Frequency &amp; Duration</b> 3 times a week; 1 hour per session; 5 sessions</p> <p><b>Facilitator</b> Not specified</p>	<p><b>Adherence</b> Not reported</p>
<p><b>Dissanayaka et al., 2016</b> <b>Country: Australia</b> <b>Design: Mixed Methods</b></p>	<p><b>N=14</b></p> <p><b>Population</b> PD</p> <p><b>Gender</b> 9 M, 5 F</p> <p><b>Mean Age ± SD</b> 66 ± 7.43</p> <p><b>Ethnicity</b> Not reported</p> <p><b>Education</b> 10 postgraduate studies or professional diploma 2 high school</p>	<p><b>Program Type, [Classification]</b> Mindfulness intervention; [MBT]</p> <p><b>Frequency &amp; Duration</b> Weekly &amp; Fortnightly; 8 weeks</p> <p><b>Facilitator</b> 6 provisionally registered Clinical Psychologists</p>	<p><b>Adherence</b> One individual withdrew after attending the first mindfulness session as he could not manage the anxiety he experienced being with a group of people</p>

	2 less than high school <b>Employment Status</b> Not reported		
<b>Duchnick et al., 2009</b> <b>Country: United States</b> <b>Design: RCT</b>	<b>N=41</b> 21 CET / 20 SGT <b>Population</b> SCI <b>Gender</b> 95% M, 5% F (CET) 100% M (SGT) <b>Mean Age ± SD</b> 50.8 ± 16.9 (CET) 54.6 ± 9.8 (SGT) <b>Ethnicity</b> 79% White, 16 % Black, 5 % Other (CET) 65 % White, 29% Black, 6 % Other (SGT) <b>Education</b> 21 college or greater (CET) 11 college or greater (SGT) <b>Employment Status</b> 53 fulltime prior to injury (CET) 24 fulltime prior to injury (SGT)	<b>Program Type, [Classification]</b> CET, [SGT] <b>Frequency &amp; Duration</b> Once a week; 60 minutes per session; 6 sessions <b>Facilitator</b> Psychologists	<b>Adherence</b> Participants who completed at least two sessions of an intervention (n=39)
<b>Ehde et al., 2004</b> <b>Country: United States</b> <b>Design: Feasibility study</b>	<b>N=18</b> <b>Population</b> Amputation, SCI, CP or MS <b>Gender</b> 12 M, 6 F <b>Mean Age ± SD</b> 46.4 ± 12.7 <b>Ethnicity</b> 17 White 1 Hispanic 1 Native American <b>Education</b> 17% less than a high school education 22.2% high school diploma 61.1% education beyond high school <b>Employment Status</b>	<b>Program Type, [Classification]</b> Cognitive restructuring intervention (CR), [Cognitive Intervention]; Education Control intervention (EC), [Educational Intervention] <b>Frequency &amp; Duration</b> Weekly 90-minute sessions; 8 sessions <b>Facilitator</b> Not specified	<b>Adherence</b> Nine participants attended the first group (4 in the EC & 5 in the CR) but did not return for any subsequent sessions

	2 fulltime 2 part-time 1 homemaker 13 unemployed		
<b>Feeney et al., 2005</b> <b>Country: Australia</b> <b>Design: Pilot Study</b>	<b>N=4</b> <b>Population</b> PD <b>Gender</b> 2 M, 2 F <b>Mean Age ± SD</b> 65.25 ± 9.5; range 60-81 <b>Ethnicity</b> Not reported <b>Education</b> Not reported <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> CBT+ <b>Frequency &amp; Duration</b> Weekly; 2 hours per session; 8 weeks; 1-month follow-up <b>Facilitator</b> Not specified	<b>Adherence</b> Not reported
<b>Fitzpatrick et al., 2020</b> <b>Country: United Kingdom</b> <b>Design: Qualitative</b>	<b>N=12</b> <b>Population</b> PD <b>Gender</b> 7 M, 5 F <b>Mean Age (SD)</b> 66.3± 7.3 <b>Ethnicity</b> 10 White British 2 Asian Indian <b>Education</b> Not reported <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> Mindfulness, [MBT] <b>Frequency &amp; Duration</b> Weekly; 8 weeks <b>Facilitator</b> Not specified	<b>Adherence</b> One participant only attended one session of MBCT-92% adherence
<b>Forman et al., 2009</b> <b>Country: United Kingdom</b> <b>Design: RCT</b>	<b>N=40</b> 20 Intervention / 20 Control <b>Population</b> MS <b>Gender</b> 4 M, 16 F (Intervention) 4 M, 16 F (Control)	<b>Program Type, [Classification]</b> Psychological group intervention, [CBT] <b>Frequency &amp; Duration</b> 6 sessions over 12 weeks; 2 hours per session <b>Facilitator</b> Psychologist	<b>Adherence</b> Seven of the 20 participants allocated to group intervention did not attend the group sessions

**Mean Age ± SD**

47.3 ± 10.3 (Intervention)

46.7 ± 9.8 (Control)

**Education**

Not reported

**Employment Status**

Not reported

**Giovannetti et al., 2020****Country: Italy****Design: RCT & nested qualitative study****N=37**

18 READY / 19 Relaxation

**Population**

MS

**Gender**

28% M, 72% F (READY)

53% M, 47% F (Relaxation)

**Mean Age ± SD**

44.8 ± 10.1 (READY)

46.53 ± 8.3 (Relaxation)

**Ethnicity**

Not reported

**Education**

2 (11.1%) middle school diploma (READY)

3 (16.7%) high school diploma (READY)

9 (50.0%) degree (READY)

4 (22.2%) PhD (READY)

7 (36.8%) middle school diploma (Relaxation)

5 (26.3%) high school diploma (Relaxation)

6 (36.8%) degree (Relaxation)

0 (0%) PhD (Relaxation)

**Employment Status**

11 (61.1%) fulltime (READY)

2 (11.1%) freelance (READY)

2 (11.1%) student (READY)

3 (16.7%) unemployed/retired (READY)

10 (52.6%) fulltime (Relaxation)

2 (10.5%) part-time (Relaxation)

4 (21.1%) freelance (Relaxation)

3 (15.8%) unemployed/retired (Relaxation)

**Program Type, [Classification]**

READY - an adult ACT informed group resilience training program, [Acceptance &amp; Commitment Therapy]

**Frequency & Duration**

Weekly; 2.5 hours per session; 7 weeks + a booster session

**Facilitator**

Study Coordinator

**Adherence**

Most participants (READY = 94.4%; Relaxation = 100%) attended more than half the program &amp; more than three quarters (READY = 77.7%; Relaxation = 73.7%) attended at least seven of eight sessions. One participant attended 50% of sessions (READY)



<b>Graziano et al., 2014</b> <b>Country: Italy</b> <b>Design: RCT</b>	<b>N=82</b> 41 Intervention / 41 Control <b>Population</b> MS <b>Gender</b> 34% M, 66% F (Intervention) 40% M, 60% F (Control) <b>Mean Age <math>\pm</math> SD</b> 42.3 $\pm$ 8.5 (Intervention) 38.4 $\pm$ 10.1 (Control) <b>Ethnicity</b> Not reported <b>Education (years)</b> 17 (41%) 8 years (Intervention) 10 (24%) 8 years (Control) 15 (37%) 13 years (Intervention) 25 (59%) 13 years (Control) 9 (22%) more than 13 years (Intervention) 7 (17%) more than 13 years (Control) <b>Employment Status [n (%)]</b> 27 (66%) employed (Intervention) 29 (71%) employed (Control) 14 (34%) unemployed (Intervention) 12 (29%) unemployed (Control)	<b>Program Type, [Classification]</b> CBT <sup>+</sup> <b>Frequency &amp; Duration</b> Four sessions over 2 months <b>Facilitator</b> Psychologist	<b>Adherence</b> 88% of participants in treatment group completed treatment & 66% were present at the 6-month follow-up
<b>Guo et al., 2009</b> <b>Country: Japan</b> <b>Design: RCT</b>	<b>N= 40</b> 23 Intervention / 21 Control <b>Population</b> PD <b>Gender</b> Mean rank 21.7 (Intervention) Mean rank 23.4 (Control) <b>Mean Age <math>\pm</math> SD</b> 64.6 $\pm$ 6.8 (Intervention) 62.6 $\pm$ 6.9 (Control) <b>Ethnicity</b> Not reported <b>Education</b> Mean rank 23.2 (Intervention) Mean rank 21.7 (Control) <b>Employment Status</b>	<b>Program Type, [Classification]</b> Group educational program, [Educational Intervention] <b>Frequency &amp; Duration</b> 4 weeks; 3 lectures each 45 minutes <b>Facilitator</b> A multidisciplinary team of professionals with previous patient teaching experience	<b>Adherence</b> A total of 40 patients completed the study

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 Not reported
 

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<b>Hadinia et al., 2017</b> <b>Country: Switzerland</b> <b>Design: RCT</b>	<b>N=30</b> 16 Intervention / 17 Control <b>Population</b> PD <b>Gender</b> 12 M, 4 F (Intervention) 11 M, 3 F (Control) <b>Mean Age <math>\pm</math> SD</b> 65 $\pm$ 8.7 (Intervention) 67 $\pm$ 11 (Control) <b>Ethnicity</b> Not Reported <b>Education (years)</b> 15 $\pm$ 3.4 (Intervention) 15 $\pm$ 3.5 (Control) <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> CBT <sup>+</sup> <b>Frequency &amp; Duration</b> Once per week, 2 hours per session; 9 weeks <b>Facilitator</b> Clinical Psychologists & trainees in Clinical Psychology	<b>Adherence</b> All patients in both groups underwent weekly treatment sessions for the duration of 2 hours over the 9 weeks
<b>Hanssen et al., 2015</b> <b>Country: Norway</b> <b>Design: RCT</b>	<b>N=120</b> 60 Intervention / 60 Control <b>Population</b> MS <b>Gender</b> 24.3% M, 66.7% F (Intervention) 20% M, 80% F (Control) <b>Mean Age (Range)</b> 53.9 (33–70) (Intervention) 52.5 (32–71) (Control) <b>Ethnicity</b> Not reported <b>Education years (range)</b> 13.1 (9-18) (Intervention) 13.5 (8-18) (Control) <b>Employment Status</b> 6 (10%) employed (Intervention) 7 (11.7%) employed (Control) 54 (90%) sick leave/disability benefit (Intervention) 53 (88.3%) sick leave/disability benefit (Control)	<b>Program Type, [Classification]</b> Cognitive Intervention <sup>+</sup> <b>Frequency &amp; Duration</b> Weekly; 4 weeks <b>Facilitator</b> Not specified	<b>Adherence</b> 93% adherence

<p><b>Hart et al., 2005</b>  <b>Country: United States</b>  <b>Design: Intervention</b></p>	<p><b>N=60</b>  <b>Population</b>  MS  <b>Gender</b>  27.7% M, 73.3% F  <b>Mean Age <math>\pm</math> SD</b>  44.8 <math>\pm</math> 10.3  <b>Ethnicity</b>  85.0% White  6.7% African-American  1.7% Hispanic  6.7% Asian-American or other  <b>Education years (range)</b>  15.3 (10-20)  <b>Employment Status</b>  27 (45%) employed  33 (55%) unemployed</p>	<p><b>Program Type, [Classification]</b>  Individual Cognitive behavioral therapy (ICBT), [CBT]; Group psychotherapy, [Psychotherapy] or Sertraline, [Pharmacological]  <b>Frequency &amp; Duration</b>  Weekly; 16 weeks  <b>Facilitator</b>  Not specified</p>	<p><b>Adherence</b>  82.2% participants completed treatment. Of participants assigned to CBT, 2 (8.7%) dropped out; 6 (20.7%) of the SEGP participants dropped out &amp; 5 (23.8%) of the 21 sertraline patients dropped out</p>
<p><b>Hassouneh et al, 2013</b>  <b>Country: United States</b>  <b>Design: Intervention</b></p>	<p><b>N=80</b>  44 Intervention / 36 Control  <b>Population</b>  Physical disability  <b>Gender</b>  100% F  <b>Mean Age <math>\pm</math> SD</b>  52.09 <math>\pm</math> 10.9 (Intervention)  52.09 <math>\pm</math> 10.9 (Control)  <b>Ethnicity</b>  2 (4.55%) African American (Intervention)  7 (15.91%) Multiracial (Intervention)  33 (75%) White (Intervention)  2 (4.55%) Native American (Intervention)  3 (8.57%) Unknown (Control)  1 (2.86%) Asian (Control)  2 (5.71%) Hispanic (Control)  2 (5.71%) Multiracial (Control)  27 (77.14%) White (Control)  <b>Education</b>  Not reported  <b>Employment Status</b>  36 (81.82%) employed (Intervention)</p>	<p><b>Program Type, [Classification]</b>  Healing Pathways, [CBT]  <b>Frequency &amp; Duration</b>  Weekly; 2.5 hours per session; 14 weeks  <b>Facilitator</b>  Trained peers (women with physical disability)</p>	<p><b>Adherence</b>  Group retention rate was 81% overall; 95% in the intervention group; 67% in the control group</p>

8 (18.18%) unemployed (Intervention)  
 22 (62.86%) employed (Control)  
 13 (37.14%) unemployed (Control)

<p><b>Hughes et al., 2004</b>  <b>Country: United States</b>  <b>Design: Intervention</b></p>	<p><b>N=102</b>            51 Intervention / 51 Control  <b>Population</b>            Physical disability  <b>Gender</b>            100% F  <b>Mean Age <math>\pm</math> SD</b>            48.29 <math>\pm</math> 12.07  <b>Ethnicity</b>            91% White            9% African American, Hispanic, or Native American  <b>Education</b>            77% postsecondary education  <b>Employment Status</b>            34% employed (12% employed fulltime)</p>	<p><b>Program Type, [Classification]</b>            Self-Esteem Enhancement Workshop+  <b>Frequency &amp; Duration</b>            Weekly; Six 2-hour weekly sessions  <b>Facilitator</b>            Trained peers (women with physical disability)</p>	<p><b>Adherence</b>            Overall completion rate of 86%</p>
<p><b>Hughes et al., 2006</b>  <b>Country: United States</b>  <b>Design: Intervention</b></p>	<p><b>N=63</b>            25 Intervention / 38 Control  <b>Population</b>            Physical disability  <b>Gender</b>            100% F  <b>Mean Age <math>\pm</math> SD</b>            51.22 years <math>\pm</math> 11.42  <b>Ethnicity</b>            60.3% White            31.7% African American            8.0% Other  <b>Education</b>            49.2% completed college or graduate school            46% some college or post-high school education            4.8% some high school education  <b>Employment Status</b>            77.8% unemployed</p>	<p><b>Program Type, [Classification]</b>            Stress Self-Management, [CBT]  <b>Frequency &amp; Duration</b>            Weekly; Six 2.5-hour sessions  <b>Facilitator</b>            Trained peers (women with physical disability)</p>	<p><b>Adherence</b>            89% study completers in intervention group</p>

<p><b>Humphreys et al., 2013</b>  <b>Country: United Kingdom</b>  <b>Design: RCT</b></p>	<p><b>N=151</b>  72 Intervention / 79 Control  <b>Population</b>  MS  <b>Gender</b>  25% M, 75% F (Intervention)  29% M, 61% F (Control)  <b>Mean Age <math>\pm</math> SD</b>  44.5 <math>\pm</math> 11.1 (Intervention)  47.5 <math>\pm</math> 10.5 (Control)  <b>Ethnicity</b>  Not reported  <b>Education</b>  Not reported  <b>Employment Status</b>  Not reported</p>	<p><b>Program Type, [Classification]</b>  Adjustment Group, [Psychological Adjustment Group]  <b>Frequency &amp; Duration</b>  6 sessions over 12 weeks  <b>Facilitator</b>  Two Assistant Psychologists supervised by a Clinical Psychologist</p>	<p><b>Adherence</b>  Not reported</p>
<p><b>Jalon et al., 2012</b>  <b>Country: United Kingdom</b>  <b>Design: RCT</b></p>	<p><b>N=23</b>  13 Intervention / 10 Control  <b>Population</b>  MS  <b>Gender</b>  3 M, 10 F (Intervention)  4 M, 6 F (Control)  <b>Mean Age <math>\pm</math> SD</b>  45.85 <math>\pm</math> 9.93 (Intervention)  52 <math>\pm</math> 7 (Control)  <b>Ethnicity</b>  Not Reported  <b>Education</b>  Not reported  <b>Employment Status</b>  6 employed (Intervention)  7 retired/unemployed (Intervention)  3 employed (Control)  7 retired/unemployed (Control)</p>	<p><b>Program Type, [Classification]</b>  Energy Conservation<sup>+</sup> &amp; Peer support group  <b>Frequency &amp; Duration</b>  Weekly; 5 weeks; 2 hours per session  <b>Facilitator</b>  Therapist</p>	<p><b>Adherence</b>  - Attrition was 13.04% as 3 patients dropped out of the study, all from experimental group. Two patients missed more than two treatment sessions &amp; were reported as drop-outs. One participant withdrew</p>
<p><b>Kopke et al., 2009</b>  <b>Country: Germany</b>  <b>Design: RCT</b></p>	<p><b>N=150</b>  77 Intervention / 73 Control  <b>Population</b>  MS</p>	<p><b>Program Type, [Classification]</b>  Education program on relapse management in addition to Corticosteroid treatment, [Educational Intervention]</p>	<p><b>Adherence</b>  Thirteen participants terminated the study early, 6 in the intervention group &amp; 7 in the control group, due to lost interest or burden of study participation</p>

	<p><b>Gender</b> 18% M, 82% F (Intervention) 23% M, 73% F (Control)</p> <p><b>Mean Age (SD)</b> 37.3 ± 7.2 (Intervention) 38.8 ± 8.1 (Control)</p> <p><b>Ethnicity</b> Not reported</p> <p><b>Education</b> 38 (49%) 12 or more years of education (Intervention) 42 (58%) 12 or more years of education (Control)</p> <p><b>Employment Status</b> Not reported</p>	<p><b>Frequency &amp; Duration</b> One time; 4 hour session</p> <p><b>Facilitator</b> Nurse &amp; a trained patient with MS</p>	
<p><b>Langenmayr &amp; Schottes, 2000</b> <b>Country: Germany</b> <b>Design: Intervention</b></p>	<p><b>N=70</b> 46 Intervention / 24 Control</p> <p><b>Population</b> MS</p> <p><b>Gender</b> 26% M, 74% F (Intervention) 34% M, 66% F (Control)</p> <p><b>Mean Age ± SD</b> 40.1 ± 8.9 (Intervention) 39.5 ± 8.9 (Control)</p> <p><b>Ethnicity</b> Not reported</p> <p><b>Education</b> Not reported</p> <p><b>Employment Status</b> Not reported</p>	<p><b>Program Type, [Classification]</b> Psychotherapeutic intervention, [Psychotherapy]</p> <p><b>Frequency &amp; Duration</b> Weekly; 1 ¼ year</p> <p><b>Facilitator</b> Therapists</p>	<p><b>Adherence</b> Not reported</p>
<p><b>Lincoln et al., 2011</b> <b>Country: United Kingdom</b> <b>Design: RCT</b></p>	<p><b>N=151</b> 72 Intervention / 79 Control</p> <p><b>Population</b> MS</p> <p><b>Gender</b> Not reported</p> <p><b>Mean Age ± SD</b> 44.5 ± 11.1 (Intervention) 47.5 ± 10.5 (Control)</p> <p><b>Ethnicity</b> Not reported</p>	<p><b>Program Type, [Classification]</b> Adjustment group, [CBT]</p> <p><b>Frequency &amp; Duration</b> 6 sessions over 12 weeks</p> <p><b>Facilitator</b> A Research Psychologist</p>	<p><b>Adherence</b> Not reported</p>

	<p><b>Education</b> Not reported</p> <p><b>Employment Status</b> Not reported</p>		
<p><b>Malekzadeh et al., 2020</b> <b>Country: Iran</b> <b>Design: RCT</b></p>	<p><b>N=45</b> 23 Intervention / 22 Control</p> <p><b>Population</b> MS</p> <p><b>Gender</b> 13.33% M, 86.66% F</p> <p><b>Mean Age <math>\pm</math> SD</b> 31.44 <math>\pm</math> 7.27</p> <p><b>Ethnicity</b> Not reported</p> <p><b>Education</b> Not reported</p> <p><b>Employment Status</b> Not reported</p>	<p><b>Program Type, [Classification]</b> Cognitive Hypnotherapy+</p> <p><b>Frequency &amp; Duration</b> Once per week, 2 hours per session; 8 weeks</p> <p><b>Facilitator</b> Psychologist</p>	<p><b>Adherence</b> Not reported</p>
<p><b>Mohr et al., 2001</b> <b>Country: United States</b> <b>Design: Intervention</b></p>	<p><b>N=63</b> 20 CBT / 22 SEGP / 21 Sertraline</p> <p><b>Population</b> MS</p> <p><b>Gender</b> 17 M, 46 F</p> <p><b>-Mean Age <math>\pm</math> SD</b> 43.9 <math>\pm</math> 10</p> <p><b>Ethnicity</b> 53 (84%) White 4 (6%) African American 3 (5%) Hispanic 3 (5%) Asian American or other</p> <p><b>Education</b> Not reported</p> <p><b>Employment Status</b> Not reported</p>	<p><b>Program Type, [Classification]</b> SEGP, [Psychotherapy]; CBT+</p> <p><b>Frequency &amp; Duration</b> Weekly; 90 minutes per session; 16 weeks</p> <p><b>Facilitator</b> Five Psychologists</p>	<p><b>Adherence</b> Eleven (18%) patients dropped out of treatment, leaving 52 completers. Of the 20 participants assigned to CBT, 1 (5%) dropped out; 4 (18%) of the 22 SEGP participants dropped out &amp; 6 (29%) of the 21 sertraline patients dropped out</p>

<p><b>Mohr et al., 2003</b>  <b>Country: United States</b>  <b>Design: Secondary data analysis from clinical trial</b></p>	<p><b>N=60</b>  22 CBT / 22 SEGP / 16 Sertraline  <b>Population</b>  MS  <b>Gender</b>  8.3% M, 71.7% F  <b>Mean Age <math>\pm</math> SD</b>  44.6 <math>\pm</math> 10.3  <b>Ethnicity</b>  85% White  6.7% African American  3.3% Hispanic  5.0% Asian American or other  <b>Education years (range)</b>  15.4 (10-20)  <b>Employment Status</b>  27 (45.0%) employed  33 (55%) unemployed</p>	<p><b>Program Type, [Classification]</b>  SEGP, [Psychotherapy]; CBT+  <b>Frequency &amp; Duration</b>  Weekly; 90 minutes per session; 16 weeks  <b>Facilitator</b>  Psychologist</p>	<p><b>Adherence</b>  One participant dropped out of CBT, 4 dropped out of SEGP &amp; 6 dropped out of sertraline. Differences in attrition rate were not significantly different across treatment groups (<math>p = .14</math>)</p>
<p><b>Mohr, et al., 2004</b>  <b>Country: United States</b>  <b>Design: Pre-post Intervention</b></p>	<p><b>N=63</b>  22 CBT / 22 / 16 Sertraline  <b>Population</b>  MS  <b>Gender</b>  28.6% M, 71.4% F  <b>Mean Age <math>\pm</math> SD</b>  44.5 <math>\pm</math> 10.16  <b>Ethnicity</b>  52 (82.5%) White  5 (7.9%) African American  3 (4.8%) Hispanic  3 (4.8%) Asian-American or other  <b>Education</b>  Not reported  <b>Employment Status</b>  28 (44.4%) employed  34 (55.6%) unemployed or on disability</p>	<p><b>Program Type, [Classification]</b>  CBT+; SEGP, [Psychotherapy]; Sertraline, [Pharmacological]  <b>Frequency &amp; Duration</b>  Weekly; 16 weeks  <b>Facilitator</b>  Two Psychologists</p>	<p><b>Adherence</b>  Twelve patients dropped out</p>



<p><b>Morrow et al., 2021</b>  <b>Country: Canada</b>  <b>Design: Pilot Study</b></p>	<p><b>N=27</b>  Fall: 6 Intervention / 4 Control  Spring: 10 Intervention / 6 Control  <b>Population</b>  MS  <b>Gender</b>  16.2% M, 83.8 % F (Intervention)  22.2% M, 77.8% F (Control)  <b>Mean Age <math>\pm</math> SD</b>  38.8 <math>\pm</math> 10.0 (Intervention)  35.3 <math>\pm</math> 8.7 (Control)  <b>Ethnicity</b>  Not reported  <b>Education (years)</b>  14.5 <math>\pm</math> 1.6  <b>Employment Status</b>  Not reported</p>	<p><b>Program Type, [Classification]</b>  Mindfulness based Intervention (MBI), [MBT]  <b>Frequency &amp; Duration</b>  Weekly; 1 hour per session; 10 weeks  <b>Facilitator</b>  Registered Nurse</p>	<p><b>Adherence</b>  Three subjects randomized to the MBI group in the spring session missed more than 2 sessions &amp; were removed from the study. One subject in the spring session, assigned to the MBI group, withdrew her consent after the baseline assessment/before the first session</p>
<p><b>das Nair et al., 2016</b>  <b>Country: United Kingdom</b>  <b>Design: RCT</b></p>	<p><b>N=21</b>  10 Group / 11 Individual  <b>Population</b>  MS  <b>Gender</b>  30% M,70% F (Intervention)  27%M, 73% F (Control)  <b>Mean Age <math>\pm</math> SD</b>  48 <math>\pm</math> 11.2 (Intervention)  28.9 <math>\pm</math> 10.4 (Control)  <b>Ethnicity</b>  100% White British  <b>Education</b>  Not reported  <b>Employment Status</b>  Not reported</p>	<p><b>Program Type, [Classification]</b>  CBT<sup>+</sup>  <b>Frequency &amp; Duration</b>  Once a week; 6 sessions  <b>Facilitator</b>  Clinical Psychologist</p>	<p><b>Adherence</b>  The individual treatment has 88% of sessions attended. Adherence in the group intervention was lower, with 55% of sessions attended</p>
<p><b>Navarta-Sánchez et al., 2020</b>  <b>Country: Spain</b>  <b>Design: Quasi experimental</b></p>	<p><b>N=140</b>  65 Intervention / 75 Control  <b>Population</b>  PD  <b>Gender</b>  67.7% M, 32.3% F (Intervention)</p>	<p><b>Program Type, [Classification]</b>  Psychoeducation intervention,[Educational Intervention]  <b>Frequency &amp; Duration</b>  One group session per week; 90 minutes per session; 9 weeks</p>	<p><b>Adherence</b>  92.9% of patients &amp; 89.0% of caregivers completed post-intervention measurement at Time 1 &amp; 83.6% of patients &amp; 78.0% of caregivers participated in post-intervention at Time 2</p>

	<p>70.7% M, 29.3% F (Control)  <b>Mean Age <math>\pm</math> SD</b>  75.4 <math>\pm</math> 8.2 (Intervention)  72.4 <math>\pm</math> 8.2 (Control)  <b>Ethnicity</b>  Not reported  <b>Education</b>  Not reported  <b>Employment Status</b>  52 (80.0%) retired (Intervention)  5 (7.7%) housework (Intervention)  1 (1.5%) fulltime (Intervention)  58 (76.3%) retired (Control)  5 (6.6%) housework (Control)  5 (6.6%) fulltime (Control)</p>	<p><b>Facilitator</b>  Multidisciplinary team of professionals and patient experts</p>	
<p><b>Pakenham et al., 2018</b>  <b>Country: Australia</b>  <b>Design: pre-post group intervention</b></p>	<p><b>N=37</b>  <b>Population</b>  MS  <b>Gender</b>  27.3% M, 63.7% F  <b>Mean Age <math>\pm</math> SD</b>  49.30 <math>\pm</math> 11.27  <b>Ethnicity</b>  Not reported  <b>Education</b>  21 (56.76%) school certificate or diploma  15 (43.24%) undergraduate degree or above  <b>Employment Status</b>  23 (62.16%) employed  14 (37.84%) unemployed</p>	<p><b>Program Type, [Classification]</b>  Acceptance &amp; Commitment based therapy+  <b>Frequency &amp; Duration</b>  Weekly; 2.5 hours per session; 7 weeks + booster 5 weeks  <b>Facilitator</b>  Postgraduate Clinical Psychology students with formal training in ACT</p>	<p><b>Adherence</b>  3 participants did not complete the intervention due to lack of time, escalation of health problems &amp; belief that program did not meet expectations</p>
<p><b>Plow et al., 2009</b>  <b>Country: United States</b>  <b>Design: RCT</b></p>	<p><b>N=50</b>  <b>Population</b>  MS  <b>Gender</b>  4 M, 16 F (Intervention)  5 M, 17 F (Control)  3 M, 9 W (Missing Data)  <b>Mean Age <math>\pm</math> SD</b>  48.5 <math>\pm</math> 9.1 (Intervention)  48.5 <math>\pm</math> 12.3 (Control)</p>	<p><b>Program Type, [Classification]</b>  GWI+  <b>Frequency &amp; Duration</b>  Weekly; 2 hours per session; 7 weeks  <b>Facilitator</b>  Not specified</p>	<p><b>Adherence</b>  80% percent of participants included in the analyses attended all seven sessions</p>

47 ± 8.7 (Missing Data)

**Ethnicity**

2 “minorities” (Intervention)

3 “minorities” (Control)

1 (Missing Data)

**Education (years)**

15.2 ± 1.9 (Intervention)

15.0 ± 2.3 (Control)

14.8 ± 1.99 (Missing Data)

**Employment Status**

12 employed (Intervention)

10 employed (Control)

9 employed (Missing Data)

**Rigby et al., 2008**  
**Country: United Kingdom**  
**Design: RCT**

**N=147**

52 Group Psychological Intervention / 42  
 Information Booklet / 44 Social Discussion

**Population**

MS

**Gender**

37% M, 63% F

**Mean Age ± SD**

44 ± 9.6

**Ethnicity**

Not reported

**Education**

Not reported

**Employment Status**

Not reported

**Program Type, [Classification]**

Group Psychological Intervention, [CBT];  
 Information Booklet Group; Non-structured  
 social discussion

**Frequency & Duration**

3 sessions; 90 minutes per session; 6 weeks,  
 follow-up 6,12 months

**Facilitator**

Clinical Health Psychologist

**Adherence**

Majority of participants attended all three sessions

**Shahkaram et al., 2020**  
**Country: Iran**  
**Design: RCT**

**N=18**

9 Intervention / 9 Control

**Population**

MS

**Gender**

2 M,7 F (Intervention)

3 M, 6 F (Control)

**Mean Age ± SD**

38.11 ± 9.29 (Intervention)

38.55 ± 8.95 (Control)

**Ethnicity**

Not reported

**Program Type, [Classification]**

Rational Emotive Behavioral Group Therapy<sup>+</sup>

**Frequency & Duration**

8 sessions

**Facilitator**

Clinical Psychologists

**Adherence**

Not reported

	<b>Education</b> Not reported <b>Employment Status</b> Not reported		
<b>Sinclair et al., 2005</b> <b>Country: United States</b> <b>Design: Quasi-experimental design; mixed methods</b>	<b>N=37</b> <b>Population</b> MS <b>Gender</b> 100% F <b>Mean Age (range)</b> 38 (22-59) <b>Ethnicity</b> 36 White 1 African American <b>Education</b> 8 (22%) high school 19 (51%) college degrees 10 (27%) graduate degrees <b>Employment Status</b> 22 (60%) fulltime 7 (19%) part-time 4 (11%) unemployed	<b>Program Type, [Classification]</b> "Beyond MS" study, [CBT] <b>Frequency &amp; Duration</b> Weekly; 5 sessions; 2 hours per session; 5 weeks <b>Facilitator</b> Psychiatric-Mental Health Nurses	<b>Adherence</b> Four women withdrew after attending only one session. One of them had a debilitating back injury, one experienced an extreme exacerbation & 2 found they were too fatigued to come to the weekly sessions
<b>Sproesser et al., 2010</b> <b>Country: Brazil</b> <b>Design: Controlled study</b>	<b>N=16 participants</b> 8 Intervention / 8 Control <b>Population</b> PD <b>Gender</b> 4 M, 4 F (Intervention) 3 F, 5 M (Control) <b>Mean Age <math>\pm</math> SD</b> 58 $\pm$ 8 (Intervention) 60 $\pm$ 9 (Control) <b>Ethnicity</b> Not reported <b>Education</b> 62.5% elementary school (Intervention) 37.5% high school (Intervention) 100% elementary school (Control) <b>Employment Status</b>	<b>Program Type, [Classification]</b> Psychotherapeutic intervention, [Psychotherapy] <b>Frequency &amp; Duration</b> Every 15 days; 12 sessions; 90 minutes per session; 6 months <b>Facilitator</b> Psychologist	<b>Adherence</b> Not reported

	12.5% employed (Intervention) 12.4% unemployed (Control)		
<b>Tesar et al., 2003</b> <b>Country: Austria</b> <b>Design: Quasi-experimental design</b>	<b>N=29</b> 14 Intervention / 15 Control <b>Population</b> MS <b>Gender</b> 14.3% M, 85.7% F (Intervention) 13.3% M, 86.7% F (Control) <b>Mean Age± SD</b> 38.2+3.2 (Intervention) 35.7+9.9 (Control) <b>Ethnicity</b> Not reported <b>Education</b> 1 (7.1%) elementary (Intervention) 8 (57.1%) secondary (Intervention) 5 (35.7%) grammar school (Intervention) 4 (26.7%) elementary (Control) 9 (60%) secondary (Control) 2 (13.3%) grammar (Control) <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> Cognitive/ behavioral strategies, relaxation training, physical exercises, [CBT] <b>Frequency &amp; Duration</b> Once a week- 90 minutes per session; 7 sessions <b>Facilitator</b> Psychologists	<b>Adherence</b> Not reported
<b>Thomas et al., 2010</b> <b>Country: United Kingdom</b> <b>Design: Intervention</b>	<b>N=16</b> 7 Iteration 1 / 9 Iteration 2 <b>Population</b> MS <b>Gender</b> 43% M, 57% F (Iteration 1) 22% M, 78% F (Iteration 2) <b>-Mean Age (SD)</b> 66 ± 8.26 (Iteration 1) 62 ± 8.34 (Iteration 2) <b>Ethnicity</b> Not reported <b>Education</b> 2 (13%) one or more General Certificate of Secondary Education (or equivalent)	<b>Program Type, [Classification]</b> CBT+ <b>Frequency &amp; Duration</b> Six 90 min weekly sessions; 6 weeks <b>Facilitator</b> Occupational Therapists, Nurses, physiotherapists	<b>Adherence</b> Across the two iterations, 9 participants attended all sessions & the remaining seven attended five

	2 (13%) one or more Advanced level (or equivalent) 3 (19%) first degree 9 (56%) vocational qualification <b>Employment Status</b> Not reported		
<b>Trend et al., 2002</b> <b>Country: United Kingdom</b> <b>Design: Pre &amp; post assessment</b>	<b>N=118</b> <b>Population</b> PD <b>Gender</b> 61.9% M, 39/1% F <b>Mean Age <math>\pm</math> SD</b> 71.47 $\pm$ 8.27 <b>Ethnicity</b> 89.7 % White <b>Education</b> Not reported <b>Employment Status</b> Reported as occupations <ul style="list-style-type: none"> <li>• 40 managerial, professional</li> <li>• 31 technical</li> <li>• 22 clerical, service</li> <li>• 12 skilled manual</li> <li>• 4 unskilled manual</li> <li>• 9 not reported</li> </ul>	<b>Program Type, [Classification]</b> Multidisciplinary Rehabilitation Program <sup>+</sup> <b>Frequency &amp; Duration</b> Once a week; 6 weeks <b>Facilitator</b> PD Specialist, Physiotherapist, Occupational Therapist, Speech & Language Therapist & Care Manager	<b>Adherence</b> 81% completed full program
<b>Troeng et al., 2014</b> <b>Country: Australia</b> <b>Design: Wait listed controlled trial</b>	<b>N=18</b> 11 Intervention / 7 Waitlist <b>Population</b> PD <b>Gender</b> 9 (82%) M, 2 (18%) F (Intervention) 3 (43%) M, 4 (57%) F (Waitlist) <b>Mean Age (SD)</b> 66 $\pm$ 8.26 (Intervention) 62 $\pm$ 8.34 (Waitlist) <b>Ethnicity</b> Not reported <b>Education</b> Not reported <b>Employment Status</b>	<b>Program Type, [Classification]</b> CBT <sup>+</sup> <b>Frequency &amp; Duration</b> Once per week; 8 weeks <b>Facilitator</b> Psychology Masters & Doctoral candidates	<b>Adherence</b> 1 withdrawal in each of the group (90% adherence)

	Not reported		
<b>Vail et al., 2007</b> <b>Country: United States</b> <b>Design: Pedagogical / experimental</b>	<b>N=19</b> <b>Population</b> Chronic physical disabilities <b>Gender</b> 100% F <b>Mean Age (range)</b> 51.3 (22-62) <b>Ethnicity</b> 5 African American/ European American 2 Latin American/ Middle Eastern <b>Education</b> 79% college diploma or degree <b>Employment Status</b> 100% unemployed or on disability benefit	<b>Program Type, [Classification]</b> Pedagogy Self-Psychology Humanistic Model, [Educational Intervention] <b>Frequency &amp; Duration</b> 1.5 hour weekly session; 10 sessions <b>Facilitator</b> Two directors of the Centers led the workshops	<b>Adherence</b> Overall adherence was 86%. One participant did not complete the final writing project owing to severe physical limitations, 8 participants felt they could not commit
<b>Visschedijk et al., 2004</b> <b>Country: Amsterdam</b> <b>Design: Intervention</b>	<b>N=11</b> 6 Intervention 1 / 5 Intervention 2 <b>Population</b> MS <b>Gender</b> 4 F, 2 M (First Intervention) 4 F, 1 M (Second Intervention) <b>Mean Age <math>\pm</math> SD</b> 34 $\pm$ 7.1 (First Intervention) 42 $\pm$ 6.8 (Second Intervention) <b>Ethnicity</b> Not reported <b>Employment Status</b> Not reported	<b>Program Type, [Classification]</b> CBT <sup>+</sup> <b>Frequency &amp; Duration</b> Every 2 weeks; 2 hours per session; 8 sessions <b>Facilitator</b> Two Psychologists	<b>Adherence</b> Three participants dropped out at different time points - 79% adherence

<sup>+</sup> = Program Type is the same as Classification; ACT = Acceptance and Commitment Therapy; BAM = Body Affective Mindfulness; CBT = Cognitive Behavioral Therapy [Studies 1-25]; CET = Coping Effectiveness Training; CP = Cerebral Palsy; DBT = Dialectical Behavioral Therapy; F= Female; GWI = Group Wellness Intervention; M= Male; MS = Multiple Sclerosis; PD = Parkinson's Disease; REBT = Rational Emotive Behavioral Therapy; SCI = Spinal Cord Injury; SD = Standard Deviation; SEGP = Supportive Expressive Group Psychotherapy; SEGT = Supportive Expressive Group Therapy; SGT = Supportive Group Therapy

**Table 2 - Intervention Framework Frequencies and Descriptions**

<b>Intervention Framework</b>	<b>Number of studies that utilize framework</b>	<b>Description</b>
Cognitive Behavioral Therapy	25 Studies identified as CBT or based on CBT principles	Structured sessions designed to enhance mood in individuals through teaching cognitive and behavioral skills.
Mindfulness-Based Therapy	6 studies	Guided by processes of attentional self-regulation, increased awareness and recognition of mental processes, curiosity, openness, and acceptance of experiences.
Psychotherapy (i.e. supportive expressive group psychotherapy)	7 studies	A manualized model for group therapy for individuals with medical conditions; interpersonal group processes used as a vehicle for change.
Educational Intervention (i.e. psychoeducation, relapse management education, coping effectiveness training)	10 studies	Interventions that implicate patients in the management of their illnesses; specific content guided by educational assessments of patients' needs and environments and learning priorities of healthcare providers and patients.
'Leisure' intervention	1 study	Adapting leisure activities or the environment in which they are being performed or of assisting a person to learn new leisure activities; or a value clarification process, by changing the attitudes of the clients towards leisure and helping them to choose a leisure activity of their own interest, thereby achieving leisure



		satisfaction and better quality of life.
Supportive Group Therapy	1	Consists of minimally structured, emotion-focused sessions; Sessions emphasized the sharing of experiences and information surrounding injury-related topics, exploration of emotional and cognitive reactions, and the opportunity for support and education from peers and psychologists.
Cognitive Interventions (i.e. cognitive restructuring)	2 studies	Interventions aimed to increase awareness of cognitive strengths, problems, and coping strategies.
Acceptance and Commitment Therapy ('Third-generation CBT')	2 studies	The goal of ACT is to increase psychological flexibility, which involves behaving consistently with one's chosen values even in the presence of unwanted intrusive internal experiences such as emotional discomfort or self-critical thinking
Self Esteem Enhancement Workshop	1 study	Highly structured workshop designed to offer women with physical disabilities an opportunity to enhance their self-esteem in a context of connectedness.
Psychological Adjustment Group	2 studies	The groups involved teaching people to recognize symptoms of distress strategies to improve mood.
Cognitive Hypnotherapy	1 study	A combination of CBT and clinical hypnosis.

Group Wellness Intervention	1 study	A health promotion intervention that takes a broad approach by the implementation of self-management / behavior change strategies.
Rational Emotive Behavioral Therapy	1 study	The originative form of cognitive-behavioral therapies ; focuses on changing irrational beliefs toward rational beliefs, intended to alter dysfunctional emotions and maladaptive behaviors to adaptive ones, thoroughly focuses on evaluative beliefs.
Energy Conservation Group	1 study	Intervention centered on discussion of fatigue, resting, packing, planning ahead; tactics to manage fatigue etc.
Multidisciplinary Rehabilitation Programme (ft. supportive group programme)	1 study	Weekly group activities included relaxation and talks from experts.
Social group Work Practice & Feminism	1 study	Aim to help [disabled] women recover from the specific injuries of oppression, exploitation, and domination and to facilitate their use of individual and collective power to redefine and restructure their realities

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