Table 17. Multidisciplinary Interventions for Depression following SCI

Author Year Country Research Design PEDro Score Total Sample Size	Methods	Outcome
Multidisciplinary telehealth consultation		
[Kryger et al.](#) (2019)

United States

RCT

Pedro=6

Level 1b

NInitial=38

NFinal=33 | **Population:** *Intervention group* (mobile health rehabilitation + standard care; n=19): Mean age=37.9±13.4yr; Gender: males=13, females=6; Mean time post injury=9.9±8yr; Level of injury: Paraplegia=11, tetraplegia=8; Severity of injury: Complete=9, incomplete=10; Depression status: mild as assessed by the BDI-II.

Control group (Usual care; n=19)

Mean age=44±15.3yr; Gender: males=12, females=7; Mean time post injury=13.5±11yr; Level of injury: Paraplegia=10, tetraplegia=9; Severity of injury: Complete=12, incomplete=7; Depression status=mild as assessed by the BDI-II. **Intervention:** Participants were randomly assigned to receive Interactive mobile Health | 1. From all the psychosocial scales, none of them showed significant changes from baseline to 9mo (p>.05). |

	rehabilitation using the iMHere system in addition to usual care, or usual care only. The iMHere app included several modules: 1) medication management, 2) urinary and bowel program reminders, with a system for reporting concerning symptoms, 3) skincare tracking with photo capabilities to monitor for pressure injuries and skin breakdown, 4) mood tracking with validated surveys, and 5) messaging, to communicate with a clinician. Outcome measures were assessed at baseline, 3mo, 6mo, and 9mo post-intervention. **Outcome Measures:** Number of UTIs, number of pressure injuries, number of emergency department visits (for any reason, or for UTIs or pressure injuries), number of hospitalizations (for any reason, or for UTIs or pressure injuries), Canadian occupational performance measure (COPM), Adolescent self-management and Independence scale, Beck Depression Inventory-II (BDI-II), Patient Assessment of	

	Chronic Illness care, World Health Organization Quality of Life measure Brief (WHOQOL-Brief), Craig Handicap Assessment and Reporting Technique Short Form using the physical domain only.	
Khong et al. (2022) United States Cohort Level 2 NInitial=83 NFinal=75	**Population:** *Intervention group* (Tele-SCI engagers; n=62): Mean age=41.24±17.08yr; Gender: males=46, females=16; Mean time post injury= 89, 74.8-109.3d (median, IQR); Level of injury: Cervical=43, thoracic=15, lumbar=4; Severity of injury: Complete=27, other=35; Depression status=normal to mild as assessed by PHQ-9 *Control group* (Tele-SCI non- engagers; n=21): Mean age=41.43±13.71yr; Gender: males=19, females=2; Mean time post injury= 78, 69-120.3d (median, IQR); Level of injury: Cervical=15, thoracic=6, lumbar=0; Severity of injury: Complete=13, other=8; Depression status: normal to mild as assessed by PHQ-9 **Intervention:** Participants received a 9.7-inch Apple iPad, 6-month data plan, hand	1. There were no significant between-group differences in the measures of life satisfaction (LSIA), reintegration (RNLI,) and depression (PHQ-9) (all p>.1) at any time point. 2. Psychological concern was the seventh common concern discussed during the FaceTime tele-SCI visits among engagers with the frequency of 39 times (5.5%).

	stylus, and adaptive equipment and received training. Participants had the option of engaging in tele-SCI consultations and visits with a SCI physiatrist using video-chat application FaceTime during the 6mo study duration. Outcome measures were assessed at baseline, and monthly (1x/mo) during the 6mo study duration. **Outcome Measures:** Life Satisfaction Index-A (LSIA), Patient Health Questionnaire-9 (PHQ-9), Reintegration into Normal Living Index (RNLI), Program Satisfaction Survey (PSS), number of ED visits, hospitalizations, in-office physician visits, tele-SCI encounters, and inquiries seeking clinical advice from any medical professional by phone or email (e.g., urinary tract infections [UTI] advice from primary care physician or daily activities from an occupational or physical therapist) were assessed.	
Dhakal et al. (2022) United Kingdom Pre-Post	**Population:** Mean age=38.4±12.2yr; Gender: males=77, females=20; Mean time post injury=not reported; Level of injury: paraplegia=64,	1. The scores for severity of depression, anxiety, and stress for participants with SCI or ABI

Level 4 N=97 SCI=82	tetraplegia=18; Severity of injury: not reported; Depression status=mixed. **Intervention**: Consultations with a multidisciplinary team (MDT) completed via a tele- rehabilitation system (1-2x/wk) until goal achievement. The MDT discussed the ongoing physical, cognitive, psychological, and vocational problems encountered by participants during the consultations and offered advice and referrals accordingly. Outcome measures were assessed at baseline, and 4wk post-intervention. **Outcome Measures:** Modified Barthel Index (MBI), Depression Anxiety Stress Scale (DASS), EuroQoL 5 (EQ-5D-5L).	significantly decreased after intervention (p<.01). 2. The EQ-5D index score significantly increased post-intervention (p<.001). 3. There was a significant mean difference (P<.001) between the pre-and post-intervention MBI, and the visual analogue scale included as an item of the EQ-5D-5L with effect sizes -0.4 and -0.7 respectively.
Multidisciplinary Self-Management Interventions		
	Population: *Intervention group* (App-based self-management; n=49): Mean age=40.37±12.18yr; Gender: males=41, females=8; Mean time post injury= <2yr; Level of injury: Cervical=14, thoracic=24, lumbar and below=11; Severity	1. BDI-II scores progressively increased in the control group from baseline to 24wk (p=.002), indicating the higher level of depression over the study period.

Liu et al. (2022) China RCT Pedro=6 Level 1b NInitial=102 NFinal=98	of injury: AIS A=25, AIS B=5, AIS C=9, AIS D=7, AIS E=3; Depression status=mild according to mean BDI-II score. Control group (Telephone follow-up; n=49): Mean age=43.06±12.06yr; Gender: males=40, females=9; Mean time post injury= <2yr; Level of injury: Cervical=15, thoracic=22, lumbar and below=12; Severity of injury: AIS A=23, AIS B=3, AIS C=9, AIS D=9, AIS E=6; Depression status=mild according to mean BDI-II score. **Intervention:** Participants were randomly given either telephone follow-ups after discharge as control, or an APP-based self-management as intervention. The control group were given calls at 12wk post-discharge to check in on skin care, managing defecation, self- care, and function training. The intervention group were given five sessions of intervention including health education by a nurse, interaction with medical staff, and	2. The depression score started to decrease in the intervention group from 12wk, and the depression level was significantly lower in the intervention group compare with the control at 24wk (p=.007).

	referral to specialists via APP at 2wk, 4wk, 6wk, 8wk, and 12wk post-discharge. Outcome measures were assessed at 12wk and 24wk post discharge. **Outcome Measures:** Beck Depression Inventory-2 (BDI-II).	
[Li & Fu (2020)](#) Canada PCT Level 2 N=124	**Population:** *Intervention group* (health management + aerobic exercise, n=68)*:* Mean age=45.36±6.33yr; Gender: males=37, females=31; Mean time post injury=<5yr (n=15), 5+yr (n=53); Level of injury: not reported; Severity of injury: incomplete=57, complete=11; Depression status=moderate depression as assessed by Beck Depression Inventory (BDI). *Control group Control group* (aerobic exercise, n=56): Mean age=43.87±5.92yr; Gender: males=29, females=27; Mean time post injury=<5yr (n=14), 5+yr (n=42); Level of injury: not reported; Severity of injury: incomplete=43, complete=13; Depression status=moderate depression as assessed by Beck Depression Inventory (BDI).	1. The WHOQOL-BREF outcome scores were significantly improved in intervention groups compared with the control group in physiological domain, psychological domain, and total QOL (p<.05). However, no statistical differences were observed in social relationship and environmental domains (p>.05) between groups. 2. Anxiety and depression scores reduced notably in both groups (p<.05), and the scores in the intervention group were significantly lower than the control after

	Intervention: A management plan was developed based on the patient's condition and self- care ability publicized to family and patients. It was also combined with aerobic exercise program mainly containing upper limb tension training, weights, and wheelchair exercises 30min/d, 5x/wk for 4wk. The control group underwent routine aerobic exercise only. Outcomes measures were assessed at baseline, and post intervention. **Outcome Measures:** Barthel Index (BI), World Health Organization Quality of Life (WHOQOL-BREF), Hamilton Anxiety Scale (HAMA), Beck Depression Inventory (BDI), Rehabilitation assessment indicators, Cardiopulmonary indicators.	treatment (p<.05).
Systematic Nursing Interventions		
	Population: *Intervention group* (Systematic nursing; n=45): Mean age=36.75±3.32yr; Gender: males=23, females=22; Mean time post injury=not	1. HADS scores significantly decreased in both groups after the intervention (p<.05), and the scores were

Xia et al. (2022) China PCT Level 2 N=90	reported; Level of injury: not reported; Severity of injury: not reported; Depression status= severe according to mean total HADS. *Control group* (Rehabilitation training plan; n=45): Mean age=36.69±3.29yr; Gender: males=21, females=24; Mean time post injury=not reported; Level of injury: not reported; Severity of injury: not reported; Depression status=severe according to mean total HADS. **Intervention:** Two groups of patients were given either usual care with a diet plan as control, or the systematic care model as the intervention. The systematic care model involved a nurse educating the patient and family about the SCI and recovery, doing psychological interventions to ease patient discomfort, and creating care plans and diet instruction pre and post operation. **Outcome Measures**: Generic quality of life inventory (GQOLI- 74), and Hospital anxiety	markedly lower in the intervention group than the control group (p<.05). 2. QOL scores significantly increased in both groups after the intervention (p<.05), and the scores were markedly higher in the intervention group than the control group (p<.05). 3. The intervention group showed better self-efficacy levels (GSES) than the control group after intervention (p<.05).

	and depression scale (HADS), Incidence of complications, Rehabilitation outcomes including Functional Independence Measure (FIM), General Self-efficacy Scale (GSES), and Modified Barthel Index (MBI).	