Appendix 7 (as supplied by the authors)

Results for studies investigating health status and well-being outcomes (n =11)

Study *(design)*	**Disease cluster**	**Type of intervention** *(intervention vs. comparator)*	**Intervention component combination**	**Specific outcome**	**Description of results**	**Effect measure (95% CI; between-group p-value)**
Physical health of patient or caregiver: *Functional status or physical health (n = 5)*						
Lamers 2010 *RCT; 9-month FU*	DEP + DM or DEP + COPD	Cognitive-behavioural: *Nurse-led Minimal Psychological Intervention (MPI) vs. Usual care*	ED + SM	Physical health (PCS of the SF-36)	The groups did not differ for the physical health component of QOL	Mean difference from baseline: -0.79; CI -2.74 to 1.16; p = 0.43
Lin 2003 *RCT; 6- and 12-month FU*	DEP + AT	Coordination of care: *IMPACT-DP (Improving Mood-Promoting Access to Collaborative Treatment: Depression with Arthritis vs. Usual care*	CM + DM + TEAM	Health-related functional impairment (SDS)	At 12-months follow-up, intervention patients reported less health related functional impairment compared with the control group	Between group difference for mean SDS score: -0.82; CI -1.17 to -0.47; p < 0.001*
				Interference with daily activities due to arthritis	Intervention group had less interference with daily activities due to arthritis than usual care (on a scale of 0 to 10)	Between group difference: -0.59; CI -1.00 to -0.19; p = 0.004*
Noel 2004 *RCT; 12-month FU*	DM + CHF + COPD	Information and health technology (Telemedicine) *Home telemedicine (telehealth) vs. Control*	CM + ED + TM	Functional status (OARS multidimensional functional scale)	There was no difference between groups for functional status at 12 months	p = 0.799
Unutzer 2008 *Mixed-methods; 6-month FU*	DEP + OA	Coordination of care: *Adapted IMPACT-DP intervention (nurse administered case management supporting primary care)*	CM + DM + ED + SM + TEAM	Pain-related functional impairment (BPI)	Intervention participants experienced significant improvement in pain-related functional impairment	Effect size: 0.81; CI 0.36 to 2.47; p = 0.013*
Williams 2004 *RCT; 12-month FU*	DM + DEP	Coordination of care: *IMPACT-DP (Improving Mood – Promoting Access to Collaborative Treatment: Diabetes and depression) vs. Usual care*	CP + DM + ED + TEAM	Overall functioning (scale of 0 to 10; 0 = none, 10 = unable to perform activities)	The intervention group had greater improvement in overall functioning than the usual care group	Between group difference: -0.89; CI -1.46 to -0.32
				Health-related functional status (physical component of the 12-item short form)	By 12 months, patients in the intervention group had significantly improved functioning compared with controls	Between-group difference: 3.21; Cl 1.78 to 4.63
Physical health of patient or caregiver: *Dyspnea or dyspnea-related disability (n = 3)*						
Alexopoulos 2014 *RCT; 28-week FU*	DEP + COPD	Coordination of care: *Personalized care management intervention for depressed patients with COPD (PID-C) vs. Usual care*	CM + ED + FR	Reduction in dyspnea-related disability (PFSDQ-M)	Intervention patients had significant reduction in dyspnea-related disability over the 28-week period. Compared with usual care.	Effect size of the PFSDQ-M difference: 0.40; CI -0.01 to 0.87; p = 0.044*

Appendix to: Kastner M, Cardoso R, Lai Y, et al. Effectiveness of interventions for managing multiple high-burden chronic diseases in older adults: a systematic review and meta-analysis. *CMAJ* 2018. doi: 10.1503/cmaj.171391

					Dyspnea-related disability due to reduction in depression severity	Mixed effects model analysis showed that reduction in depression severity (Ham-D) contributed to the advantage of intervention group over usual care in reducing dyspnea-related disability at later assessments.	In the whole group, for every 1-point decrease in depression, there was an average 2.34- point reduction in the PFSDQ-M; p = 0.013*
	Bernocchi 2018 *RCT; 4-month FU*	HF + COPD	Information and health technology Telerehabilitation home-based program (Telereab-HBP) vs. Usual care	DM + ED (Pt) + TM	Dyspnea (MRC – Medical Research Council)	The treatment group significantly improved compared with conventional care for dyspnea (MRC)	Change in MRC was −0.17 (−0.3,−0.02) in IG and 0.07 (−0.1,0.3) in CG, p=0.0500*
					Dyspnea (Physical Activity Scale for the Elderly [PASE])	The treatment group significantly improved compared with conventional care for dyspnea on the Physical Activity Scale for the Elderly (PASE)	Change in PASE was 18.1 (−0.6,36.9) in IG and −21.3 (−35.7,−7.0) in CG, *P* = 0.0015*
					Dyspnea (BARTHEL)	The treatment group significantly improved compared with conventional care for dyspnea (BARTHEL)	Change in BARTHEL was 5.4 (3.6,7.2) in the intervention group and 1.3 (−0.2,2.8) in the control group, *P* = 0.0006.*
	Williams 2004 *RCT; 12-month FU*	DM + DEP	Coordination of care: *IMPACT-DP (Improving Mood – Promoting Access to Collaborative Treatment: Diabetes and depression) vs. Usual care*	CP + DM + ED + TEAM	Dyspnea-related disability	Mixed effects model analysis showed that adequate exercising contributed to the advantage of intervention group over usual care in reducing dyspnea-related disability	In the whole group, patients who exercised longer than 2 hours per week had an average of 18 points greater reduction in PFSDQ-M scores than those who exercised less; p = 0.022*
Psychological health of patient or caregiver: *Mental health and cognitive functioning (n = 4)*							
	Lamers 2010 *RCT; 9-month FU*	DEP + DM or DEP + COPD	Cognitive-behavioural: *Nurse-led Minimal Psychological Intervention (MPI) vs. Usual care*	ED + SM	Mental health (MCS of the SF-36)	The groups did not differ for the mental health component of QOL	Mean difference from baseline: -1.87; CI -4.34 to 0.59; p = 0.14
	Williams 2004 *RCT; 12-month FU*	DM + DEP	Coordination of care: *IMPACT-DP (Improving Mood – Promoting Access to Collaborative Treatment: Diabetes and depression) vs. Usual care*	CP + DM + ED + TEAM	Mental health (12-item short form)	By follow-up, patients with diabetes in the intervention group had significantly improved functioning on the mental component of the 12-item short form	Between-group difference: 2.44; CI 0.79 to 4.09*
	Naik 2012 *Uncontrolled trial; 6-month FU*	DM + DEP	Self-management: *Healthy outcomes through patient empowerment (HOPE): Telephone-delivered behavioural coaching*	CP + ED + FR + SM + TEAM	Diabetes-related emotional distress (PAID)	The intervention reduced diabetes-related emotional distress	Mean change from baseline: 20.4 (SD 20.7); Effect size (Cohen's d): 1.06 (large effect size[1])*

	Noel 2004 *RCT; 6-month FU*	DM + CHF + COPD	Information and health technology (Telemedicine): *Home telemedicine (telehealth) vs. Control*	CM + ED + TM	Cognitive status (OARS multidimensional functional scale)	Intervention patients showed a statistically significant improvement in cognitive status at 12 months	p = 0.006*
Psychosocial health of patient or caregiver: *General health status and well-being, overall QOL (n = 6)*							
	Bernocchi 2018 *RCT; 4-month FU*	CHF + COPD	Information and health technology Telerehabilitation home-based program (Telereab-HBP) vs. Usual care	DM + ED (Pt) + TM	QOL: Minnesota Living with Heart Failure Questionnaire (MLHFQ)	The treatment group significantly improved compared with usual care for MLHFQ	Change in MLHFQ was -10.5 (-14.2,-6.8) in the intervention and -0.44 (-4.9,4.0) in the control group; p=0.0007*
					COPD assessment test (CAT)	The treatment group significantly improved compared with usual care for CAT	Change in CAT was −5.3 (−6.9,−3.7) in the intervention group and 1.6 (−0.4,3.5) in the control group, *P* = 0.0000*
	Doyle 2017 *RCT; 8-week FU*	COPD + depression or anxiety	Cognitive-behavioural: Telephone-based CBT vs. telephone-based befriending	DM + ED + TM	COPD assessment test (CAT)	There was a significant change in COPD symptoms (CAT) from T1 to T2 for the control group (befriending), but not for the intervention group (CBT); however, at T3, this change was no longer significant in the befriending group.	Effect size (95% CI) = 0.1 (-0.4, 0.3)
	Bowles 2009 *RCT; 2- and 3-month FU*	CHF + DM	Information and health technology (Telemedicine): *Telephone (in-person visits + telephone) vs. TM (in-person visits + TM) vs. Control (in-person visits only)*	DM + ED + TM	General health status (one question on a 5-point scale; 1 = excellent, 5 = poor)	The groups did not differ for general health status at 60 or 90 days	p = 0.76
	Lin 2003 *RCT; 6- and 12-month FU*	DEP + AT	Coordination of care: *IMPACT-DP (Improving Mood-Promoting Access to Collaborative Treatment: Depression with Arthritis vs. Usual care*	CM + DM + TEAM	Overall QOL (on a scale from 0 to 10) compared with the control group)	At 12-months follow-up, the intervention group had significant improvement on overall QOL	Between group difference: 0.42; CI 0.13 to 0.71; p = 0.005*
					General health status (on a 5-point scale) compared with the control group)	At 12-months follow-up, the intervention group had significant improvement in general health status	Between group difference: -0.3; CI -0.42 to -0.17; p < 0.001*
	Noel 2004 *RCT; 6-month FU*	DM + CHF + COPD	Information and health technology (Telemedicine): *Home telemedicine (telehealth) vs. Control*	CM + ED + TM	Patient satisfaction (OARS multidimensional functional scale)	The groups did not differ for patient satisfaction on the OARS scale	p = 0.125
					Health status (OARS multidimensional functional scale)	The groups did not differ for health status on the OARS scale	p = 0.506
	Whitten P, 2007 *RCT; 10.7 week FU*	CHF + COPD	Information and health technology (Telemedicine): Telemedicine: *Home telehealth vs. Control*	DM + TM	Health and well-being (SF-36 subscales)	Overall, the addition of telehealth to COPD/CHF patient care was not a significant predictor of health and wellbeing, either positively or negatively; the	No data provided

						groups did not differ	

**QOL = quality of life; BDI = Beck Depression Inventory; PCS = physical component score of the SF-36; MCS = mental component score of the SF-36; PHQ-9 = patient health questionnaire; HSCL-20 = Hopkins symptom checklist; PAID = problem areas in diabetes scale; BPI = brief pain inventory; ALF = aggregate locomotor function; BP = blood pressure; DMSES = diabetes self-efficacy scale; SDSCA = summary of diabetes self-care activities; HAM-D = Hamilton depression rating scale; PFSDQ-M = pulmonary functional status and dyspnea questionnaire – modified; BDOC = bed days of care; OARS multidimensional functional assessment = objective tools that measure cognitive status and functional level and two subjective tools that measure patient satisfaction with care and self-rated health status; EBASD = even briefer assessment scale for depression; CSDD = Cornell Scale for Depression in Dementia; GDS = geriatric depression scale; RAID = rating anxiety in dementia; BEHAVE-AD = ; OSPRSO = Omaha System Problem Rating Scale for Outcomes; SDS = Sheehan Disability Scale; CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; DEP = depression; DEM = dementia; AT = arthritis; OA = osteoarthritis; CKD = chronic kidney disease; DM = diabetes; CVD = cardiovascular disease

†Effect size measured using Cohen's d (0.8 = large effect; 0.5 = medium effect; 0.2 = small effect)