Efficacy of sustained knowledge translation (KT) interventions in chronic disease management in older adults: systematic review and meta-analysis of complex interventions

Supplementary Online Content

Appendix 1: Systematic Review Methods

Eligibility criteria

We included randomised controlled trials (RCTs) where the target population for the CDM intervention included patients (aged 65 years and older with one or more chronic disease including non-communicable diseases, such as diabetes or dementia [1]) or their caregiver. CDM interventions were continued for 12 months or more to be eligible for inclusion. End-users of the KT intervention included patients aged 65 years and older with one or more chronic diseases, their caregivers, clinicians (all disciplines), public health officials (including medical officers of health, department chairs, programme managers), health care managers and policy-makers (including regional, state/provincial, federal).

The CDM intervention was defined as the clinical intervention (may include pharmacologic and non-pharmacologic interventions such as exercise in a patient with type 2 diabetes); CDM interventions could target any chronic condition and may target the patient, caregiver, clinician, or health system, aiming to optimise health and patient well-being. The KT intervention was defined as the strategy used to support implementation of the CDM intervention, such as a reminder system for patients to exercise or motivational interviewing for clinicians to promote patient exercise. KT interventions were classified using (1) a pre-existing taxonomy developed by the Cochrane Effective Practice and Organisation of Care (EPOC) group, and (2) the behaviour change technique (BCT) taxonomy. We included CDM interventions for any chronic condition combined with at least one KT intervention (e.g., audit and feedback, reminders, opinion leaders) targeting patients, caregivers, healthcare providers, or health systems. The comparators were other KT interventions or usual care.

We selected core outcomes through a modified Delphi agreement-building approach undertaken by 11 knowledge users, as described in our protocol (Appendix 1) [2]. The primary outcome was sustained implementation of a KT intervention for CDM beyond one year after implementation or termination of funding, and which KT interventions were used. This outcome implies that the CDM intervention study would have a duration of 12 months or longer and we determined if, and what, KT interventions were sustained during this period. Secondary outcomes were health-related or disease specific QOL and process or QOC (Appendix 2). Eligible were both published and unpublished RCTs in any language and healthcare setting (e.g., primary care, specialist care, acute or long-term care).

Search strategy

We searched the bibliographic databases MEDLINE (1946 – March 4, 2020), EMBASE (1974 – March 4, 2020), and the Cochrane Central Register of Controlled Trials databases (CENTRAL, 2020, Issue 2). A librarian (JM) developed the search strategies with input from the study team, and peer-reviewed by a second librarian using the Peer Review of Electronic Search Strategies (PRESS) checklist (Appendix 3). Reference lists of all included studies and relevant reviews were scanned. We developed a grey literature search strategy [3] to seek unpublished studies which included reviewing websites of key funding agencies and healthcare provider organisations from Australia, Canada, United Kingdom, United States, and by contacting experts in the field. These included the Agency for Healthcare Research and Quality(https://www.ahrq.gov/index.html), Evidence & Policy journal, Australia KT, Implementation Science journal, Health Evidence and KT Plus McMaster, KT Strategies database, Canadian Knowledge Transfer and Exchange Community of Practice, Canadian Stroke best practices, Ontario Institute for Cancer Research, Canadian Centre for Applied Research in Cancer Control, Canadian Kidney KT and Generation Network, Evaluation Support Scotland, and the online resource created for Behaviour Change theories for researchers, policymakers and practitioners (http://www.behaviourchangetheories.com/) through the relevant websites. In all websites, we used the search strategy: ("chronic disease" AND aged AND "randomized controlled trial") AND ("knowledge translation" AND sustain).

Selection process

After, duplicate scanning within the Endnote software, the team first conducted two calibration screening exercises of study eligibility criteria on 50 records each, among seven reviewers (48% disagreement on first pilot exercise and 20% disagreement on second pilot exercise). Next, pairs of reviewers independently screened titles and abstracts in duplicate. Disagreements (14%) were resolved through discussion. Subsequently, one pilot test of 20 full-text articles was conducted among all reviewers (24% disagreement) and the team refined the data extraction template accordingly. Thereafter, two reviewers screened remaining full-text articles independently and in duplicate. The full screening process was performed through Synthesi.SR (https://breakthroughkt.ca/login.php).

Data collection process and data items

We developed a standardized data abstraction form, and pilot tested it using a random sample of five studies. We extracted participant, intervention, and outcome level data from each study, as described in our protocol [2]. Pairs of reviewers independently abstracted data from each included study, and third review resolved discrepancies. We emailed authors for missing data or data clarifications.

As per our protocol, two reviewers (ACT, CF) with expertise in KT and research methods coded each KT intervention within the included studies independently using EPOC and BCT taxonomies to identify active components in each intervention [4-6]. KT intervention coding conflicts using EPOC (arose in 38% of the coded interventions) and BCT (arose in 57% of the coded interventions) were resolved through discussion and by a third reviewer (SES, JP, CS, PR). Based on the intervention target population, each KT intervention components were classified at: the healthcare system, healthcare provider or patient level using EPOC taxonomy (Appendix 4); and healthcare system, healthcare provider, caregiver, and patient levels using BCT taxonomy (Appendix 5)[6]. Moreover, each KT intervention component was stratified as tailored or non-tailored (using BCT taxonomy) to the audience. We used the coding structure to create intervention nodes for meta-analysis by classifying interventions according to their taxonomy categories. We captured the following binary variables (yes/no): whether sustainability of KT interventions was assessed beyond 1 year, fidelity of KT interventions was Assessed ("the consistency and quality of targeted organizational members' use of the specific innovation" [7]), and adherence (continuing all components of the intervention) of KT interventions for at least one year.

Study risk of bias and reporting bias assessment

We used the EPOC risk of bias (ROB) tool to appraise included studies [8]. Following a calibration exercise of three studies, pairs of reviewers, who worked independently, appraised each included study. Third reviewer (PR) resolved conflicts.

We used visual inspection of the contour-enhanced funnel plot and Egger's test to assess for small-study effects and reporting bias when more than ten studies were available per meta-analysis and for all interventions as a single group against usual care [9].

Effect measures and synthesis methods

We performed a descriptive analysis for the primary outcome, sustainability of KT interventions, and used frequencies and percentages for the discrete variables: sustainability, adherence, and fidelity assessment for each KT intervention.

We combined study-level data in a meta-analysis using the mean difference (MD) for continuous outcomes (i.e., QOL) and odds ratio (OR) for dichotomous outcomes (i.e., QOC) along with corresponding 95% confidence intervals (95% CI) when at least two studies were available. We combined study-level data in a meta-analysis using the mean

difference (MD) for continuous outcomes (i.e., QOL) and odds ratio (OR) for dichotomous outcomes (i.e., QOC) along with corresponding 95% confidence intervals (95% CI) when at least two studies were available. We decided to use MD for each different scale since included studies reported multiple results eligible for inclusion, i.e., effect estimates for multiple scales measuring the same outcome (e.g., Short-Form mental and Short-Form physical for QOL), to capture any differences in the results. We also preferred using the OR due to its good mathematical properties [10]. We summarized results using both EPOC and BCT coding. We combined all interventions as a single group and compared it with usual care for each outcome separately, and irrespective of EPOC and BCT coding. In case a study compared multiple KT intervention groups against usual care, we combined KT interventions in a single group as suggested in the Cochrane Handbook [11]. We analysed different measurement scales separately to allow for MD inclusion provided by the original publications, allowing combination of change scores and final values, thereby simplifying findings interpretation. For missing standard deviations (SDs) that could not be retrieved from publications or calculated from other statistics, we borrowed SDs from similar studies with the same intervention comparison. For cluster-RCTs, we used the cluster-adjusted effect estimate, or if not reported, we used the unadjusted data accounting for the design effect [11]. We used the average intraclass correlation coefficient across when not reported in a study to calculate the design effect [11].

Where study-level data were available, we performed a random-effects meta-analysis model using the inverse-variance method, since we expected the studies to be methodologically and clinically different [12]. We estimated the overall effect size and its 95% CI using the Hartung-Knapp-Sidik-Jonkman method to handle meta-analyses with few studies [13-15]. We calculated prediction intervals (PIs) for the overall effect, to capture the interval within which we expected the true intervention effect of a new study to fall. We assessed between-study heterogeneity by visual inspection of each meta-analysis forest plot, using the χ^2 test (with $p<0.10$ indicating a larger variation across studies rather than between subjects within a study), the I^2 statistic (quantifying the degree of heterogeneity), and τ^2 (estimating the between-study variance) along with its associated 95% CI [16-18]. We used the restricted maximum likelihood method to estimate τ^2 and the Q-profile approach to calculate a 95% CI for τ^2 [19, 20].

When excessive heterogeneity was detected, we checked the data for potential data abstraction errors. If no errors were identified, we performed meta-regression, subgroup, or sensitivity analyses. We explored possible heterogeneity sources using predefined sensitivity analyses: excluding studies with imputed SDs, excluding outliers as visually detected in the funnel plot, excluding studies with more than 80% male participants, restricting to studies at low ROB given the

components of incomplete outcome data and selective outcome reporting, restricting to studies reporting a history of prescription usage, and restricting to studies with concomitant CDM therapies. We combined findings using both random-effects and fixed-effect models and prioritized a random-effects model in all analyses except for those with estimated heterogeneity equal to zero and fewer than three studies. When heterogeneity was estimated to be zero, we reported the fixed-effect model estimate because in these cases the Hartung-Knapp-Sidik-Jonkman method is considered inadequate [13, 21]. When two studies were included and the estimated heterogeneity was (>0), we presented both fixed and random effects findings."[22]

We explored the influence of patient age, publication year, and QOL baseline level or care using meta-regression when meta-analysis included more than 10 studies. We performed a series of subgroup analyses to further explore sources of heterogeneity and differences in summary estimates, specifically duration of KT sustainability at 12 months against longer than 12 months, number of chronic diseases, number of comorbidities, and KT setting (e.g., home, primary care clinic, outpatient clinic, general practitioner (GP) clinic, community). All subsequent analyses were performed for comparison including all interventions vs usual care due to the dearth of studies within each individual intervention comparison. All analyses were conducted in R using the *meta* package [23].

Appendix 2: Protocol Deviations Summary Sheet

Category of deviation	Reasons for deviation	Action undertaken
Data Analysis	We were unable to estimate the individual component effects and their combinations due to insufficient power. Our taxonomy identified 15 EPOC and 78 BCT individual components and multiple combinations of these (104 for EPOC and 190 for BCT). Examples include patient/provider education, reminders, and financial incentives in EPOC and problem solving, action planning, and social support in BCT. The quality-of-life outcome sustained to at least 12 months was described in 50 studies reporting seven different measurement scales and 49 different interventions (combinations of components), including usual care. This sparce evidence did not allow us to derive granular insights to fully inform the priorities of KUs.	We restricted our analysis to a meta-analysis instead of a network meta-analysis to infer on the identified individual measurement scales separately. Our review provided high-level evidence of the KT sustainability evidence base, but we plan to perform a rapid update of this systematic review and perform a network meta-analysis as originally planned.
Data Analysis	We decided to perform a frequentist approach and follow the most recent and rigorous Cochrane guidelines on conducting a pairwise meta-analysis [11, 13, 24]. We expect no important differences in the results between Bayesian and frequentist approaches, and we preferred to focus on model features rather than choosing between statistical frameworks [25].	We performed a frequentist analysis instead of a Bayesian approach
Economic analysis of the interventions identified to be effective	We were unable to perform an economic evaluation to compare the cost and outcome among the most effective and sustainable KT interventions, since results from a network meta-analysis were not provided.	This will be performed in a separate paper, once a rapid update of our systematic review is performed along with a network meta-analysis as planned in our protocol. As per our initial plan, we will build a decision analytic model comparing effective interventions to estimate an incremental cost-effectiveness ratio.

Appendix 3: Delphi Results

Process: We followed a modified e-Delphi, where two rounds of online voting were conducted to rank outcomes using the outcomes from our previous scoping review[4]. Participants included researchers, clinicians, policymakers, caregivers, and patients, and were asked to rate importance of each outcome on a 7-point scale (ranging from 1 = least important to 7 = most important)

Results: Round 1 (10 respondents): 28 outcomes with median rank score 6 or higher shortlisted for second round of voting; Round 2 (11 respondents): The 3 top ranked outcomes selected were: Clinical outcomes (patient); Quality of life (patient); Process/quality of care (health system). Results from both rounds are presented below.

Table 1. Delphi results in round 1

Item*	Not Important (1) [N (%)]	2 [N (%)]	3 [N (%)]	Neutral (4) [N (%)]	5 [N (%)]	6 [N (%)]	Extremely Important (7) [N (%)]	Median (IQR)
Patient-level Outcomes								
Adaptation	0 (0%)	0 (0%)	3 (30%)	1 (10%)	**3 (30%)**	2 (20%)	0 (0%)	5 (3, 5)
Acceptability	0 (0%)	0 (0%)	0 (0%)	3 (30%)	0 (0%)	**4 (40%)**	2 (20%)	6 (4, 6)
Adherence To Treatment	0 (0%)	1 (10%)	0 (0%)	0 (0%)	1 (10%)	**3 (30%)**	4 (40%)	6 (6, 7)
Adverse Events/Complications	0 (0%)	0 (0%)	0 (0%)	2 (20%)	2 (20%)	**2 (20%)**	3 (30%)	6 (5, 7)
Anxiety	0 (0%)	0 (0%)	1 (10%)	1 (10%)	**4 (40%)**	3 (30%)	0 (0%)	5 (5, 6)
Attitude To Treatment	0 (0%)	2 (20%)	0 (0%)	1 (10%)	**2 (20%)**	4 (40%)	0 (0%)	5 (4, 6)
Behavioural Disturbance	0 (0%)	0 (0%)	0 (0%)	3 (30%)	1 (10%)	**4 (40%)**	1 (10%)	6 (4, 6)
Clinical Outcomes	0 (0%)	0 (0%)	0 (0%)	2 (20%)	0 (0%)	2 (20%)	**5 (50%)**	7 (6, 7)
Disease Specific Quality Of Life	0 (0%)	0 (0%)	0 (0%)	1 (10%)	1 (10%)	1 (10%)	**6 (60%)**	7 (6, 7)
Functional Status	0 (0%)	0 (0%)	0 (0%)	1 (10%)	0 (0%)	3 (30%)	**5 (50%)**	7 (6, 7)
Health Behaviours	0 (0%)	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**1 (10%)**	4 (40%)	6 (5, 7)
Health Related Distress	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**2 (20%)**	3 (30%)	0 (0%)	5 (4, 6)
Health Status -Self Reported	0 (0%)	0 (0%)	0 (0%)	2 (20%)	2 (20%)	**3 (30%)**	2 (20%)	6 (5, 6)
Health Related Quality Of Life	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**5 (50%)**	7 (6, 7)
Health Literacy/Knowledge	0 (0%)	0 (0%)	1 (10%)	1 (10%)	**4 (40%)**	3 (30%)	0 (0%)	5 (5, 6)
Mortality	0 (0%)	0 (0%)	1 (10%)	1 (10%)	**3 (30%)**	0 (0%)	4 (40%)	5 (5, 7)
Perceived Quality Of Care	0 (0%)	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**2 (20%)**	3 (30%)	6 (5, 7)
Physical Function	0 (0%)	0 (0%)	0 (0%)	1 (10%)	**3 (30%)**	2 (20%)	2 (20%)	5.5 (5, 6.25)

Psychological Well-Being	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (30%)	**4 (40%)**	2 (20%)	6 (5, 6)
Residence Status	0 (0%)	1 (10%)	1 (10%)	2 (20%)	**2 (20%)**	3 (30%)	0 (0%)	5 (4, 6)
Risk Scores	0 (0%)	2 (20%)	0 (0%)	2 (20%)	**2 (20%)**	2 (20%)	1 (10%)	5 (4, 6)
Patient Satisfaction	0 (0%)	0 (0%)	0 (0%)	2 (20%)	2 (20%)	**3 (30%)**	2 (20%)	6 (5, 6)
Self-Care Behaviour	0 (0%)	0 (0%)	0 (0%)	2 (20%)	**4 (40%)**	2 (20%)	1 (10%)	5 (5, 6)
Self-Efficacy	0 (0%)	0 (0%)	0 (0%)	2 (20%)	**5 (50%)**	2 (20%)	0 (0%)	5 (5, 5)
Social Support/Activity	0 (0%)	0 (0%)	0 (0%)	2 (20%)	**4 (40%)**	3 (30%)	0 (0%)	5 (5, 6)
Survival	0 (0%)	1 (10%)	0 (0%)	1 (10%)	1 (10%)	**3 (30%)**	3 (30%)	6 (5, 7)
Caregiver-level Outcomes								
Anxiety	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**3 (30%)**	3 (30%)	0 (0%)	5 (4, 5.75)
Caregiver Burden	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (30%)	**2 (20%)**	5 (50%)	6.5 (5.25, 7)
Caregiver Competence/Skill	0 (0%)	1 (10%)	0 (0%)	2 (20%)	**4 (40%)**	2 (20%)	1 (10%)	5 (4.25, 5.75)
Caregiver Stress/Distress	0 (0%)	0 (0%)	0 (0%)	2 (20%)	2 (20%)	**3 (30%)**	3 (30%)	6 (5, 6.75)
Caregiver Personality (Neuroticism)	1 (10%)	0 (0%)	3 (30%)	**4 (40%)**	1 (10%)	1 (10%)	0 (0%)	4 (3, 4)
Caregiver Preparedness	0 (0%)	1 (10%)	1 (10%)	1 (10%)	**3 (30%)**	2 (20%)	1 (10%)	5 (4, 6)
Caregiver Unmet Needs	0 (0%)	1 (10%)	2 (20%)	0 (0%)	**6 (60%)**	1 (10%)	0 (0%)	5 (3.5, 5)
Caregiver Satisfaction	0 (0%)	1 (10%)	0 (0%)	1 (10%)	**4 (40%)**	3 (30%)	1 (10%)	5 (5, 6)
Caregiver Social Activity	0 (0%)	1 (10%)	1 (10%)	2 (20%)	**5 (50%)**	1 (10%)	0 (0%)	5 (4, 5)
Caregiver Well-Being	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (40%)	**4 (40%)**	2 (20%)	6 (5, 6)
Caregiver Depression/Depressive Symptoms	0 (0%)	1 (10%)	0 (0%)	2 (20%)	**2 (20%)**	3 (30%)	2 (20%)	5.5 (4.25, 6)
Caregiver Knowledge	1 (10%)	0 (0%)	1 (10%)	1 (10%)	**2 (20%)**	4 (40%)	1 (10%)	5.5 (4.25, 6)
Caregiver's Physical Health	0 (0%)	1 (10%)	1 (10%)	2 (20%)	**3 (30%)**	2 (20%)	1 (10%)	5 (4, 5.75)
Caregiver's Productivity Loss	0 (0%)	1 (10%)	0 (0%)	1 (10%)	**4 (40%)**	4 (40%)	0 (0%)	5 (5, 6)
Caregiving Quality	0 (0%)	0 (0%)	2 (20%)	1 (10%)	**4 (40%)**	1 (10%)	2 (20%)	5 (4.25, 5.75)
Coping Strategies	0 (0%)	0 (0%)	0 (0%)	0 (0%)	**5 (50%)**	4 (40%)	0 (0%)	5 (5, 6)
Decision Making Confidence	0 (0%)	1 (10%)	0 (0%)	1 (10%)	**5 (50%)**	3 (30%)	0 (0%)	5 (5, 5.75)
Decision-Making Skill	0 (0%)	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**5 (50%)**	0 (0%)	6 (5, 6)
Desire To Institutionalize	0 (0%)	1 (10%)	1 (10%)	**3 (30%)**	2 (20%)	3 (30%)	0 (0%)	4.5 (4, 5.75)

Family Conflict	1 (10%)	1 (10%)	0 (0%)	**3 (30%)**	2 (20%)	3 (30%)	0 (0%)	4.5 (4, 5.75)
Health Related Quality Of Life	0 (0%)	0 (0%)	0 (0%)	2 (20%)	**3 (30%)**	2 (20%)	3 (30%)	5.5 (5, 6.75)
Self-Efficacy	0 (0%)	0 (0%)	0 (0%)	1 (10%)	**6 (60%)**	2 (20%)	1 (10%)	5 (5, 5.75)
Sense Of Mastery	0 (0%)	1 (10%)	0 (0%)	2 (20%)	**4 (40%)**	3 (30%)	0 (0%)	5 (4.25, 5.75)
Social Problem Solving Abilities	1 (10%)	0 (0%)	1 (10%)	1 (10%)	**5 (50%)**	2 (20%)	0 (0%)	5 (4.25, 5)
Social Support	0 (0%)	0 (0%)	0 (0%)	0 (0%)	**5 (50%)**	4 (40%)	1 (10%)	5.5 (5, 6)
Use Of Support Services	0 (0%)	0 (0%)	2 (20%)	1 (10%)	**2 (20%)**	4 (40%)	1 (10%)	5.5 (4.25, 6)
Healthcare provider-level outcomes								
Adherence To Guidelines	0 (0%)	1 (10%)	0 (0%)	0 (0%)	0 (0%)	**5 (50%)**	4 (40%)	6 (6, 7)
Process/Quality Of Care Outcomes	0 (0%)	0 (0%)	0 (0%)	1 (10%)	1 (10%)	**3 (30%)**	5 (50%)	6.5 (6, 7)
Prescribing Behaviour	0 (0%)	1 (10%)	0 (0%)	1 (10%)	1 (10%)	**3 (30%)**	4 (40%)	6 (5.25, 7)
Physician Knowledge	0 (0%)	1 (10%)	1 (10%)	0 (0%)	1 (10%)	**5 (50%)**	2 (20%)	6 (5.25, 6)
Implementation	0 (0%)	0 (0%)	1 (10%)	0 (0%)	0 (0%)	**6 (60%)**	3 (30%)	6 (6, 6.75)
Perceived Job Demands/Satisfaction/Quality	0 (0%)	1 (10%)	0 (0%)	2 (20%)	**4 (40%)**	3 (30%)	0 (0%)	5 (4.25, 5.75)
Health system-level outcomes								
Healthcare/Health Services Use	0 (0%)	0 (0%)	0 (0%)	2 (20%)	2 (20%)	**3 (30%)**	3 (30%)	6 (5, 6.75)
Hospitalization/Readmission	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	**6 (60%)**	3 (30%)	6 (6, 6.75)
Institutionalization	0 (0%)	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**4 (40%)**	2 (20%)	6 (5, 6)
Process/Implementation Outcomes	0 (0%)	0 (0%)	0 (0%)	1 (10%)	3 (30%)	**3 (30%)**	3 (30%)	6 (5, 6.75)
Clinical Targets	0 (0%)	0 (0%)	1 (10%)	2 (20%)	1 (10%)	**3 (30%)**	3 (30%)	6 (4.25, 6.75)

***Item names in bold text received a median ranking >5 and will be included the round 2 survey**

Table 2. Delphi results in round 2

Outcome	Not Important (1)[N (%)]	2 [N(%)]	3 [N (%)]	Neutral (4)[N (%)]	5 [N (%)]	6 [N (%)]	Extremely Important (7)[N (%)]	Median (IQR)
Clinical Outcomes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (30%)	7 (70%)	7 (6.25, 7)
Disease Specific Quality Of Life	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	5 (50%)	5 (50%)	6.5 (6, 7)
Functional Status	0 (0%)	0 (0%)	0 (0%)	1 (10%)	0 (0%)	5 (50%)	4 (40%)	6 (6, 7)
Health Related Quality Of Life	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	5 (50%)	4 (40%)	6 (6, 7)
Process/Quality Of Care Outcomes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	5 (50%)	4 (40%)	6 (6, 7)
Implementation	0 (0%)	0 (0%)	0 (0%)	1 (10%)	0 (0%)	6 (60%)	3 (30%)	6 (6, 6.75)
Adherence	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (20%)	6 (60%)	2 (20%)	6 (6, 6)
Adverse Events	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (20%)	6 (60%)	2 (20%)	6 (6, 6)
Health Behaviours	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (20%)	6 (60%)	2 (20%)	6 (6, 6)
Psychological Well-Being	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	7 (70%)	0 (0%)	6 (6, 6)
Caregiver Burden	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	7 (70%)	2 (20%)	6 (6, 6)
Adherence To Guidelines	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (20%)	7 (70%)	1 (10%)	6 (6, 6)
Healthcare/Health Services Use	0 (0%)	0 (0%)	0 (0%)	1 (10%)	1 (10%)	6 (60%)	2 (20%)	6 (6, 6)
Hospitalization/Readmission	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	9 (90%)	1 (10%)	6 (6, 6)
Process/Implementation Outcomes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	7 (70%)	2 (20%)	6 (6, 6)
Clinical Targets	0 (0%)	0 (0%)	0 (0%)	1 (10%)	1 (10%)	8 (80%)	0 (0%)	6 (6, 6)
Survival	0 (0%)	0 (0%)	1 (10%)	0 (0%)	2 (20%)	4 (40%)	3 (30%)	6 (5.25, 6.75)
Health Status (Self-Rated)	0 (0%)	0 (0%)	0 (0%)	1 (10%)	2 (20%)	7 (70%)	0 (0%)	6 (5.25, 6)
Caregiver Well-Being	0 (0%)	0 (0%)	0 (0%)	1 (10%)	2 (20%)	7 (70%)	0 (0%)	6 (5.25, 6)
Prescribing Behaviour	0 (0%)	0 (0%)	1 (10%)	1 (10%)	1 (10%)	6 (60%)	1 (10%)	6 (5.25, 6)
Physician Knowledge	0 (0%)	0 (0%)	0 (0%)	1 (10%)	2 (20%)	6 (60%)	1 (10%)	6 (5.25, 6)
Institutionalization	0 (0%)	0 (0%)	0 (0%)	1 (10%)	2 (20%)	7 (70%)	0 (0%)	6 (5.25, 6)
Behavioural Disturbance	0 (0%)	0 (0%)	0 (0%)	2 (20%)	2 (20%)	6 (60%)	0 (0%)	6 (5, 6)
Patient Satisfaction	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (40%)	4 (40%)	2 (20%)	6 (5, 6)
Perceived Quality Of Care	0 (0%)	0 (0%)	0 (0%)	2 (20%)	3 (30%)	5 (50%)	0 (0%)	5.5 (5, 6)
Caregiver Stress/Distress	0 (0%)	0 (0%)	0 (0%)	1 (10%)	4 (40%)	4 (40%)	1 (10%)	5.5 (5, 6)
Decision-Making Skill	0 (0%)	0 (0%)	0 (0%)	1 (10%)	4 (40%)	5 (50%)	0 (0%)	5.5 (5, 6)
Acceptability	0 (0%)	0 (0%)	0 (0%)	2 (20%)	4 (40%)	3 (30%)	1 (10%)	5 (5, 6)

Appendix 4: KT sustainability outcome definitions

Outcome	**Definition/Measure/Cut-off value**
Sustainability of the delivery of the Knowledge Translation (KT) intervention	Sustainability of the delivery of the KT intervention >1 year after implementation or termination of study funding
Quality of Life/Disease or Symptom severity measures	St. George's Respiratory Questionnaire • Medical Outcomes Survey o 36-item Veterans general health scale (SF-36V) o 12-item Veterans general health scale (SF-12v) o 36-item Short Form Health Survey (SF-36) o 20-item Short Form Health Survey (SF-20) o 12-item Short Form Health Survey (SF-12) • Euroqol Quality of Life (EQ-5D) o Visual Analogue Scale (EQ-VAS) o EuroQol-5D-5L o EuroQol-5D-3L • Minnesota Living with Heart Failure Questionnaire
Process/Quality of care measures	• Proportion of patients receiving necessary/appropriate screening tests • Proportion of patients receiving appropriate diagnoses/assessments • Level/quality of communication with patient • Treatment efficacy • Adherence to treatment/practice guidelines

Appendix 5: Search Strategy for MEDLINE

Note: The following search was adjusted and translated for other databases as necessary.

Database: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

Search Strategy:

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1 exp Chronic Disease/ (246037)

2 ((chronic or longterm or long-term) adj (disease*or illness* or condition*)).tw,kw. (15265)

3 chronic* ill*.tw,kw. (18361)

4 exp *Angina Pectoris/ (27035)

5 (stenocardia* or angina).ti. (18554)

6 exp *Cardiovascular Diseases/ (1835963)

7 ((cardiovascular or cardio-vascular) adj (disease* or abnormalit* or infection*)).ti. (30520)

8 (aneurysm* or aortic rupture* or endoleak* or microaneurysm* or hypertension or high blood pressure* or heart disease* or heart failure or cardiac failure or cardiac edema* or cardia oedema* or cardiac arrest*).ti. (345556)

9 (arrhythmia* or bradycardia* or tachycardia* or cardiac dysrhythmia* or heart block* or ventricular fibrillation* or atrial fibrillation*).ti. (82590)

10 (cardiomegaly or hypertrophy or enlarged heart or heart enlarge*).ti. (22118)

11 (cardiomyopath* or cardio-myopath* or myocarditis or myocardial disease* or endomyocardial fibrosis).ti. (40633)

12 (thrombosis or thrombus or thromboses or thromboembolism* or embolism* or thrombophlebitis* or lemierre syndrome).ti. (93101)

13 (peripheral vascular disease* or peripheral angiopath* or peripheral arterial disease* or phlebitis or raynaud disease*).ti. (7180)

14 (arteriosclerosis or atherosclerosis or atheromata* or atherogenesis).ti. (41783)

15 (coronary disease* or myocardial infarct* or heart attack*).ti. (87994)

16 exp *Cerebrovascular Disorders/ (266818)

17 ((cerebrovascular or cerebro-vascular or vascular) adj (disorder* or disease* or occlusion*)).ti. (16450)

18 (ischemia or stroke or strokes or carotid artery disease* or arterial disease* or vascular dementia or arteriovenous malformation*).ti. (159210)

19 (intracranial h?emorrhage* or cerebral h?emorrhage* or cerebrovascular trauma* or vascular headach* or central nervous system vasculitis or Intracranial vasospasm* or brain infarc*).ti. (5482)

20 exp *Ischemia/ (35183)

21 exp *Arthritis/ (192902)

22 (arthritis or osteoarthritis or osteo-arthritis or gout or caplan syndrome or sjogren* syndrome or rheumatoid nodule or rheumatoid vasculitis or still* disease* or periarthritis or rheumatic fever or spondylarthritis).ti. (134111)

23 exp *Osteoporosis/ (36260)

24 Osteoporosis.ti. (22685)

25 exp *Asthma/ (97349)

26 (asthma or asthmas).ti. (74639)

27 exp *Neoplasms/ (2617204)

28 (carcinoma* or neoplasm* or tumor* or tumour* or cancer* or adenocarcinoma* or malignanc* or ependymoma* or leukemia* or lymphoma* or sarcoma* or rhabdomyosarcoma* or osteosarcoma* or adenoma* or adenosarcoma* or carcinosarcoma* or blastoma* or nephroma* or thymoma* or melanoma* or retinoblastoma*).ti. (1999444)

29 exp *Pulmonary Disease, Chronic Obstructive/ (38293)

30 (COPD or chronic obstructive pulmonary disease* or chronic bronchitis or pulmonary emphysema*).ti. (37059)

31 exp *Inflammatory Bowel Diseases/ (60361)

32 *Irritable Bowel Syndrome/ (4994)

33 (ulcerative colitis or crohn* disease* or inflammatory bowel disease* or irritable bowel syndrome* or mucous colitis).ti. (60779)

34 exp *Diabetes Mellitus/ (300755)

35 (diabetes or diabetic or IDDM or wolfram syndrome* or T1DM or T2DM or T1 DM or T2 DM or NIDDM).ti. (291463)

36 exp *Mental Disorders/ (918626)

37 exp *Sleep Wake Disorders/ (61709)

38 ((drug or substance or alcohol or opioid or fentanyl or marijuana or cocaine or tobacco or amphetamine) adj (addiction* or abus* or dependenc* or disorder*)).ti. (26830)

39 (depression* or depressive disorder* or anxiet* or dementia).ti. (168517)

40 (sleep* adj2 disorder*).ti. (6970)

41 exp *HIV Infections/ (221809)

42 (acquired immunodeficiency syndrome* or AIDS arteritis or AIDS virus or AIDS related or AIDS dementia or HIV infection* or human immunodeficiency virus* or HIV seropositivit* or HIV wasting syndrome*).ti. (59111)

43 or/1-42 (6883217)

44 Caregivers/ (29045)

45 (care giver* or caregiver* or care next giver* or carer* or companion* or client care attendant* or home-care assistant* or home-care worker* or home care worker* or home-care aide* or home care aide* or home health care worker* or home healthcare worker* home health care assistant* or home healthcare assistant* or home health care aide* or home healthcare aide* or homemaker* or home-maker* or housekeeper* or house-keeper* or home support worker* or home health aid* or home visitor* or in-home assistant* or personal aide* or personal assistant* or personal care aide* or personal care attendant* or personal care provider* or personal support aide* or personal support worker* or respite worker* or personal attendant*).tw,kw. (76491)

46 44 or 45 (84834)

47 43 and 46 (33680)

48 aged.sh. or age*.tw. (5142994)

49 43 and 48 (2202098)

50 limit 43 to "all aged (65 and over)" (1495597)

51 47 or 49 or 50 (2232508)

52 (randomized controlled trial or controlled clinical trial or pragmatic clinical trial).pt. (540449)

53 (randomized or placebo or randomly).tw. or trial.ti. (828494)

54 clinical trials as topic/ (182450)

55 or/52-54 (1139198)

56 51 and 55 (222097)

57 animals/ not humans/ (4389953)

58 56 not 57 (219701)

59 Waiting Lists/ (10402)

60 (wait* list* or queu*).tw,kw. (12975)

61 exp *"Continuity of Patient Care"/ (121453)

62 (care continuity or "coordination of care" or shared care).tw,kw. (2925)

63 ((continui* or continuum*) adj2 (care or healthcare)).tw. (10868)

64 Triage/ (9887)

65 (triage* or triaging).tw,kw. (15459)

66 *Quality Assurance, Health Care/ (30805)

67 exp *Quality Improvement/ (9023)

68 *total Quality Management/ (7201)

69 (quality assurance or total quality management or TQM or continuous quality improvement or CQI or QI).tw,kw. (31595)

70 (quality adj (improvement$ or initiativ$ or intervention$ or program$ or plan$ or audit$)).tw,tw. (29386)

71 outreach.tw,kw. (11034)

72 exp Self Care/ (48833)

73 *Self Efficacy/ (6652)

74 exp Self Help Devices/ (10153)

75 (self car* or self-car* or self help or self-help or self manag$ or self-manag$ or self-monitor* or self monitor* or goal setting or self efficacy or self-efficacy).tw,kw. (60547)

76 exp *social support/ (22867)

77 (social network* or social support* or social systems*).tw,kw. (44860)

78 ((length or time) adj3 (consult* or consultation*)).tw,kw. (2499)

79 exp *"Referral and Consultation"/ (28117)

80 models, nursing/ (11701)

81 "Personnel Staffing and Scheduling"/og [Organization & Administration] (3311)

82 (staff* adj (model or models)).tw,kw. (684)

83 exit interview*.tw,kw. (783)

84 Personnel Turnover/ and (Interviews as Topic/ or interview*.tw,kw.) (322)

85 Personnel Selection/ and (exp Rural Health Services/ or Medically Underserved Area/) (501)

86 ((recruit* or hire or hiring or retention or retain* or train* or retrain* or re-train* or personnel select* or staff select*) adj2 (underserv* or rural or physician shortage* or doctor shortage* or health worker* or health manager* or health system manager*)).tw,kw. (2440)

87 district health manager*.tw,kw. (59)

88 or/59-87 (455087)

89 58 and 88 (12440)

90 exp Patient Care Planning/ (59223)

91 exp disease management/ (56137)

92 (advance care planning or care pathway* or case management or case coordination or case co-ordination or disease management or patient care management or patient care planning or patient handoff or patient hand-off or patient discharge or discharge plan* or care pathway*).tw,kw. (31419)

93 Geriatric Assessment/ (23231)

94 (geriatric assessment or psychogeriatric* or psycho-geriatri* or gerontolog* assessment*).tw,kw. (4701)

95 exp Interprofessional Relations/ (63960)

96 (interdisciplinary communication* or interprofessional communication* or interdisciplinary relation* or interprofessional relation* or inter-disciplinary communication* or inter-professional communication* or inter-disciplinary relation* or inter-professional relation*).tw,kw. (1648)

97 Communication/ and exp Health Personnel/ (13310)

98 (communication adj2 (provider* or manager* or professional* or health personnel or health care personnel or physician* or doctor* or nurse* or pharmacist* or medical staff* or health care worker* or health worker* or specialist*)).tw,kw. (9734)

99 ("package of care" or (package* adj care)).tw,kw. (172)

100 delivery of health care/mt (3815)

101 exp "Appointments and Schedules"/ and Patient Participation/ (116)

102 ((Patient initiated or patient-initiated) adj2 (follow up or follow-up or appointment* or schedul*)).tw,kw. (18)

103 Patient Participation/ and (exp "Appointments and Schedules"/ or follow up.tw,kw. or follow-up.tw,kw. or appointment*.tw,kw. or schedule*.tw,kw.) (1202)

104 "Referral and Consultation"/og (2815)

105 (referral system* or referral software*).tw,kw. (1238)

106 (shared adj2 care).tw,kw. (1532)

107 Decision Making/ (81893)

108 (shared decision making or shared decision-making).tw,kw. (5240)

109 patient transfer/ (7156)

110 ("transfer of care" or patient transfer*).tw,kw. (1637)

111 (guided care nurs* or transition coach* or nurse case manage* or advanced practice nurs* or care coordinator* or transition liaison nure* or nurse discharge advocate* or care transition nurs* or case manager* or transitional care nurs* or Home care nurs* or Liaison nurs* or Community care nurs* or System navigator* or Hospital home care coordinator* or Bed utilization coordinator* or Clinical nurse specialist* or Discharge coordinator* or Discharge planner* or Outreach coordinator* or Care coordinato* or Community case manager* or Patient flow coordinator* or Outreach nurs* or Outreach case manag* or Mental health case manag* or Community care coordinator* or Access homecare coordinato*r or Long term care transition* or elderly care transition*).tw,kw. (10214)

112 or/90-111 (340260)

113 58 and 112 (5062)

114 *Information Systems/ (12280)

115 Health Information Systems/ (897)

116 Integrated Advanced Information Management Systems/ (288)

117 exp Management Information Systems/ (44400)

118 "information and communication technolog*".kw,tw. (2002)

119 (health adj3 information system*).kw,tw. (3791)

120 (smart home* or smart environment*).kw,tw. (398)

121 exp telemetry/ (11504)

122 exp Telemedicine/ (21905)

123 (telemedicine or telepathology or telerehabilitation or teleradiology or telenurs* or mobile health or ehealth or Tele-medicine or tele-pathology or tele-rehabilitation or tele-radiology or tele-nurs*).kw,tw. (14975)

124 Absenteeism/ and exp policy/ (112)

125 (absenteeism* and polic*).tw,kw. (338)

126 exp *Accreditation/ or accreditation/ or accreditation.tw,kw. (21782)

127 Patient Rights/ (6569)

128 (patient* adj right*).tw,kw. (4311)

129 or/114-128 (128217)

130 58 and 129 (1258)

131 Organizational Culture/ or organizational culture*.tw,kw. or organisational culture*.tw,kw. or corporate culture*.tw,kw. (16639)

132 Organizational Innovation/ (22928)

133 "audit and feedback".tw,kw. (938)

134 ((audit or audits or auditing) adj2 feedback).tw,kw. (1029)

135 (Medical Errors/ or Risk Management/ or incident report.tw,kw.) and (system*.tw,kw. or exp information systems/) (7075)

136 ("communities of practice" or "community of practice" or "practice community" or "practice communities").tw,kw. (3526)

137 ((education* adj2 gam*) or (education* adj2 play)).tw,kw. (597)

138 exp Education/ and exp "Play and Playthings"/ (1933)

139 exp Teaching Materials/ (112194)

140 exp Inservice Training/ (27060)

141 (education* adj2 (printed or material* or meeting* or outreach or visit* or conference* or workshop* or train* or inservice or in-service or cours*)).tw,kw. (26318)

142 exp Education, Continuing/ (58644)

143 ((continuing or physician* or provider* or professional* or clinician* or doctor* or nurs* or pharmac*) adj2 (CME or educat* or train* or retrain* or re-train* or workshop* or professional development*)).tw,kw. (88447)

144 academic detail*.tw,kw. (457)

145 practice guidelines as topic/ (102126)

146 guideline adherence/ (27563)

147 ((guideline* or CPG or CPGs) adj3 (disseminat$ or adherence)).tw,kw. (6046)

148 (consensus adj (expert or local or develop* or conference* or process* or workshop*)).tw,kw. (7745)

149 (group adj (nominal or technique* or process* or consensus)).tw,kw. (3013)

150 opinion leader*.tw,kw. (1184)

151 ((opinion or education* or influential) adj leader*).tw,kw. (1608)

152 manag* supervis*.tw,kw. or *Nursing, Supervisory/ (5887)

153 patient mediat*.tw,kw. (62)

154 (Patient Participation/ or Consumer Participation/) and (Professional Practice/ or exp Professional Competence/ or performance.tw,kw.) (1359)

155 (performance data adj5 public).tw,kw. (67)

156 Reminder Systems/ (2991)

157 (recall adj2 system*).tw. (481)

158 (reminder* adj2 (prompt or system* or process* or manual or computer* intervention*)).tw,kw. (796)

159 patient reported outcome measure*.tw,kw. (2734)

160 patient reported outcome measures/ (1196)

161 (tailor* adj3 intervention*).tw,kw. (5956)

162 or/131-161 (464962)

163 58 and 162 (4916)

164 89 or 113 or 130 or 163 (20367)

165 Translational Medical Research/ (8083)

166 exp *Evidence-Based Practice/ (29723)

167 *Program Evaluation/ (9329)

168 *Information Dissemination/ (7295)

169 Knowledge Management/ (295)

170 *"Outcome and Process Assessment (Health Care)"/ (9050)

171 "process assessment (health care)"/ (4022)

172 "Outcome Assessment (Health Care)"/ (62270)

173 exp "diffusion of innovation"/ (18025)

174 *Program Development/ (7077)

175 (knowledge adj2 (translation or disseminat* or diffus* or exchange or transfer*)).tw,kw. (5931)

176 sustain*.tw,kw. (285655)

177 ((adherence or maintenance or adoption or adaptation or effect* or report or reporting or improv* or implement*) adj3 (innovation* or intervention* or strateg* or outcome* or process*)).tw,kw. (375574)

178 (diffusion adj3 innovation*).tw,kw. (911)

179 (continued adj2 effect*).tw,kw. (1164)

180 or/165-179 (781353)

181 164 and 180 (5529)

182 (editorial or comment).pt. (1021117)

183 181 not 182 (5518)

184 "Costs and Cost Analysis"/ (45658)

185 (cost* or cost benefit analys* or cost effective*).tw. (498399)

186 Cost-Benefit Analysis/ (71461)

187 Health Care Costs/ (34182)

188 or/184-187 (549206)

189 88 or 112 or 129 or 162 (1233580)

190 51 and 189 (124651)

191 188 and 190 (8426)

192 180 and 191 (2288)

193 192 not 183 (1458)

Appendix 6. Coding Guide for KT Intervention Components Using EPOC Taxonomy Coding

Component	CODE	Description	Examples from the included studies
QI strategies targeting health systems			
Electronic patient registry	hs EPR	General electronic medical record system or electronic tracking system for patients with chronic diseases. We do not include websites unless patients were tracked over time. To qualify, the system has to have been part of the clinical trial as an intervention (i.e., not pre-existing infrastructure unless used more actively).	*"...A key intervention element was health care organization- and community agency-based dementia care managers (primarily social workers) who received formal training and used an Internet-based care management software system for care planning and coordination... Assessment responses were entered into the software system, generating a preliminary problem list and guides to care-plan actions...The software system had a feature to enable efficient tracking of multiple cases and tasks. Referrals to a particular community agency were guided by flagged problem areas..." [26]*
Financial incentives	hs finan	Interventions with positive or negative financial incentives directed at system-wide changes in reimbursement (e.g., capitation, prospective payment, or a shift from fee-for-service to salary pay structure).	*"Specifically, we organized the distribution of printed educational brochures, pedometers and home blood glucose material (HBGM), which are not typically reimbursed in Belgium for patients on oral antidiabetic drugs or followed up solely by primary care." [27]*
QI strategies targeting health-care providers			
Team changes	team	Changes to the structure or organisation of the primary health-care team (adding team member, multidisciplinary teams, expansion, or revision of professional roles)	*"Each site had two full-time clinical pharmacist equivalents, three pharmacists at KP (2 were half-time) and two in VA who worked exclusively with patients on intervention teams" [28]*
Electronic patient registry	EPR	General electronic medical record system or electronic tracking system for patients with chronic diseases. We do not include websites unless patients were tracked over time. To qualify, it had to be a part of the clinical trial as an intervention (i.e., not pre-existing infrastructure unless used more actively)	*"Electronic clinical information systems allow for "real time" access to individual patient information, as well as the tracking of individual contacts and interventions. The tracking systems provide e-mail alerts notifying the NCM about specific patient contact within the Carle system, including emergency department visits, hospital admissions and discharges, outpatient*

Component	CODE	Description	Examples from the included studies
			procedures, and appointments with other clinicians" [29]
Facilitated relay of info to clinicians	Relay	Clinical information collected from patients and transmitted to clinicians by means other than the existing medical record (excluding conventional means of correspondence between clinicians.)	*"Participants randomized to the intervention group received a home telemedicine unit... consisting of a Web-enabled computer with modem connection to an existing telephone line. The HTU provided four major functions: (i) video-conferencing over plain old telephone service (POTS) connections at eight to 15 frames per second allowing patients to interact with nurse case managers... (ii) remote monitoring of glucose... (iii) dial-up Internet service provider access to a Web portal providing access to patients' own clinical data and secure Web-based messaging with nurse case mangers; and (iv) access to an educational Web site created for the project" [30]*
Continuous QI	cQI	Interventions explicitly identified as involving the techniques of continuous QI, total quality management, or plan-do-study-act, or any iterative process for assessing quality problems, developing solutions to those problems, testing their effects, and then reassessing the need for further action.	*"All ACQIP physicians participated in an intensive quality improvement program in which they were informed of their individual performance on the ACQIP indicators as well as of the mean performance of their peers... Each physician received this information in mailings approximately 3 to 6 weeks apart during 1996, according to a schedule developed by HCFA and AQAF. With assistance from AQAF, physician offices developed quality improvement plans (QIPs), currently on file at AQAF. The extensive and multimodal QIPs included formalized group meetings, root cause analysis, and changes of care at the office level, such as posting of patient educational material, use of chart interventions in the practice environment, reminders, clinical flow sheets, and standing orders for appropriate administration of influenza vaccination." [31]*
Audit & feedback	AF	Summary of clinical performance of health care delivered by an individual clinician or clinic over a specified period, which was then transmitted back to the clinician. This	*"Because data about their performance have been shown to contribute to and reinforce practice changes, many NHs receive periodic reports*

Component	CODE	Description	Examples from the included studies
		strategy was strictly based on clinical data and excluded clinical skills.	*about residents prescribed antipsychotics from their pharmacies. Enhanced audit and feedback reports were developed that presented aggregated facility-level atypical antipsychotic prescribing data for the most recent quarter and quarterly for the prior 12 months and benchmark comparisons with state and national prescribing levels that are not typically provided to facilities. Important information about the efficacy and safety of atypical antipsychotics from the CERSG was also provided." [32]*
Staff education	staff	Interventions for staff designed to promote increased understanding of principles guiding clinical care or awareness of specific recommendations for a target disorder or population of patients.	*"The general practitioners were introduced to possible solutions to therapeutic problems through clinical guidelines supported by an annual half-day seminar [33]*
Clinician reminders	clin_reminder	Paper-based or electronic systems intended to prompt a health professional to recall patient-specific information (e.g., most recent HbA1c value) or to do a specific task (e.g., foot examination).	*"This study aimed to evaluate, within a pragmatic, cluster-randomised controlled trial design, the effectiveness and efficiency of an area-wide, 'extended' computerised diabetes register incorporating a full-structured recall and management system, actively involving patients, and including individualised patient-management prompts to primary care clinicians based on locally-adapted, evidence-based guidelines." [34]*
Financial incentives	finan	Interventions with positive or negative financial incentives directed at providers (e.g., linked to adherence to some process of care or achievement of some target outcome).	*"The nurse also organized appointments for participants to discuss the CDM plan with their GP. GPs were remunerated for using the CDM plan, providing an incentive for them to participate in the trial as well as a pathway for implementation of trial outcomes" [35]*
QI strategies targeting patients			
Case management	case-M	Any system for coordinating diagnosis, treatment, or routine management of patients (e.g., arrangement for referrals, follow-up of test results) by a person or multidisciplinary team in collaboration with, or supplementary to, the primary-care clinician. If the study called the intervention 'case management', we classified it as such.	*"We designated one nurse from each of the eight clusters (primary care clinics) as the clinic's depression care manager... We gave nurse care managers an additional 3 h of group training in their care management role and responsibilities; they then participated in monthly supervision and continuing education sessions led by the study*

Component	CODE	Description	Examples from the included studies
			psychiatrist for the duration of the study. Care manager responsibilities included education of patients and families about their illnesses, assistance with communication between patients and providers, and support of patients' adherence to treatment. During the 16 week acute phase of treatment, primary care nurses telephoned patients every 2 weeks to assess their antidepressant use and side-effects, administered the PHQ-9 to assess treatment response, and encouraged patients to keep their appointments. In alternate weeks to the telephone call, patients attended visits to their primary care clinic and the care managers administered the PHQ-9. In this manner, depression scores on the PHQ-9 were taken every week" [36]
Promotion of self-management	Self-M	Provision of equipment or access to resources to promote self-management. If the study called the intervention promotion of self-management, personalised goal-setting, or action-planning, we included it here. In general, we perceive this as a more active strategy than education of patients.	*"Assessment of patient need was linked to appropriate support, including self help guidebooks based on published development methods, access to relevant community groups and programs via a web-based directory of local self management resources..." [37]*
Patient Reminders	px reminder	Any effort to remind patients about upcoming appointments or important aspects of self-care. If the intervention included case management, reminders to patients needed to be explicit and to represent an extra task as compared to normal case management.	*"Participants randomized to the wait-list control group were instructed to wear the pedometer every day, reminded monthly to log in to the website to upload step-count data, and asked to report all adverse events" [38]*
Patient education	px_educ	Interventions designed to promote greater understanding of a target disorder or to teach specific prevention or treatment strategies, or specific in-person education (e.g., individual or group sessions with diabetes nurse educator, distribution of printed or electronic educational materials). Interventions with education of patients are included only if they also include at least one other strategy related to clinician or organizational change. We do not include occasions of optional education.	*"During hospital admission all patients received standard evidence-based treatment with the patients of education group participated in 1-hour one-on-one teaching session before hospital discharge" [39]*
Motivational interview	mot_interview	'a directive and client-centred counselling style that relies upon identifying and mobilising the client's intrinsic values and goals to stimulate behaviour change [40], thus	*Motivational Interviewing (MINT) is a patient-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving*

Component	CODE	Description	Examples from the included studies
		encouraging client and family involvement in all aspects of care.'	*the ambivalence subjects feel with respect of health choices... In the study, nurses delivered a MINT call every 3 months (four calls in a period of 12 months) to elicit individual values, preferences, arguments for change, reasons for past failures, and to empower patients to resolve ambivalence and develop a behavior modification plan" [41]*
Financial incentives	px_finan	Interventions with positive or negative financial incentives directed at patients/caregivers (e.g., linked to adherence to some process of care or achievement of some target outcome).	*"All patients were compensated $25.00 per visit" [42]*

Abbreviations: QI, Quality Improvement

Appendix 7. Coding Guides for Clinical Intervention Components using BCT coding

Component	CODE	Description	Example
QI strategies targeting healthcare system			
1.1 Goal setting (behaviour) – not tailored	NT_HS_1.1	The individual is encouraged to make a behavioural resolution. This is directed towards encouraging people to decide to change or maintain change.	*Medical assistants developed specific action plans to achieve these goals together with patients and caregivers.* [48]
1.3 Goal setting (outcomes) – not tailored	NT_HS_1.3	The individual is encouraged to set a general goal that can be achieved by behavioural means but is not defined in terms of behaviour (e.g., lose/maintain weight). The goal may be an expected consequence of one or more behaviours, but is not a behaviour per se. Use content of reported outcomes to decide whether to code Goal setting (outcome) and/or Goal setting (behaviour). If unclear if one or other, code both (see 1.1)	*Personalized quality improvement reports pushed directly to the site by email each quarter, as well as tailored teleconferences, webinars, and specialized tool kits for healthcare providers.*[34]
2.1 Monitoring of behaviour by others - not tailored	NT_HS_2.1	Must be active and in service of changing behaviour, not simply routine data collection that is already in place.	*Hospitals continued to receive access to the usual on-demand reports, 'Get with it the Guidelines – Heart Failure' quality improvement tools, and publicly available GWTG-HF webinars. These reports continued to be available on request but were not actively pushed to the sites on a routine basis…*[34]
2.2 Feedback on behaviour – not tailored	NT_HS_2.2	Coded only when there was clear feedback about behaviour. This code implies a monitoring process providing feedback.	*Intervention added to the current baseline reports with personalized quality improvement reports pushed directly to the site by email each quarter…The personalized reports were designed to describe the site's heart failure patient population compared with other "Get with the guidelines – Heart Failure hospitals, highlight performance on both GWTG-HF achievement measures and 9 GWTG-HF quality metrics…*[34]
2.7 Feedback on outcome(s) of behaviour – not tailored	NT_HS_2.7	Coded only when there is clear feedback about outcomes. This code implies a monitoring process providing the feedback data.	*Processing that data to make it informative and providing comparative feedback combined with academic detailing. A key feature is presenting comparative feedback comparing practices at twice yearly meetings held within a locality/primary care organization.*[31]
4.1 Instruction on how to perform a behaviour – not tailored	NT_HS_4.1	Coding in relation to skills acquisition/development. Code algorithms and decision trees (also consider coding as Adding objects to environment if material objects or software).	*Training (developed and piloted with two non-trial practices) was delivered in each practice over two sessions, which we estimated through informed feedback was the maximum feasible in UK primary care using current educational structures. Session 1 practices worked on ways to embed self management tools in their systems; in session 2, clinicians practised ways to use core*

Component	CODE	Description	Example
			self management skills in consultations and ensure patients received, or were directed to, appropriate resources. [71]
12.5 Adding objects to the environment – not tailored	NT_HS_12.5	Code for the addition of new physical or virtual (software) aimed at facilitating behaviour change. If something existing is changed, consider coding to Restructuring physical environment.	*In addition to personalized reporting…individuals also received access to webinars, teleconferences and specialized tool kits* [34]
QI strategies targeting health-care providers			
1.1 Goal setting (behaviour) – tailored/not tailored	T_HP_1.1/ NT_HP_1.1	The individual is encouraged to make a behavioural resolution. This is directed towards encouraging people to decide to change or maintain change.	*The initial assessment involved the entire team and took approximately 2 hours. After the assessments were complete, the team developed goals, interventions, treatment, and individualized follow-up for each patient.*[18]
1.2 Problem solving – not tailored	NT_HP_1.2	The person is prompted to think about potential barriers and identify the ways of overcoming them. Barriers may include competing goals in specified situations. This may be described as 'problem solving'. If it is problem solving in relation to the performance of a behaviour, then it counts as an instance of this technique.	*Multimodal QIPs included formalized group meetings, root cause analysis, and changes of care at the office level, such posting of patient educational material, use of chart interventions in the practice environment…*[74]
1.3 Goal setting (outcomes) – tailored/not tailored	T_HP_1.3/ NT_HP_1.3	The individual is encouraged to set a general goal that can be achieved by behavioural means but is not defined in terms of behaviour (e.g., lose/maintain weight). The goal may be an expected consequence of one or more behaviours, but is not a behaviour per se. Use content of reported outcomes to decide whether to code Goal setting (outcome) and/or Goal setting (behaviour). If unclear if one or other, code both (see 1.1)	*The medical coordinator discussed and agreed guidelines for secondary prevention with the practice doctors and gave ongoing support in setting up a register and recall system for regular review of patients with coronary heart disease by their general practitioner.*[101]
1.4 Action planning	NT_HP_1.4	Detailed planning of performance of the behavior (must include at least one of context, frequency, duration and intensity). Context ca be considered environmental (physical or social) or internal (physical, emotional or cognitive)	*An action plan for each practice was agreed with the practice and regularly reviewed by the study research nurse and practice.*[105]
1.7 Review outcome goal(s) – tailored	T_HP_1.7	Involves a review or analysis of the extent to which previously set outcome goals (e.g., to reduce blood pressure or lose/maintain weight) were achieved. In most cases, this will follow previous goal setting (see technique 6, goal	*The general practitioner was also requested to define, together with the patient, the best possible goals for blood glucose concentration, glycated haemoglobin, diastolic blood pressure, and lipids within three predefined categories…. At follow up, the general practitioner was asked to compare the achievements with*

Component	CODE	Description	Example
		setting-outcome') and an attempt to act on those goals, followed by a revision of goals, and/or means to attain them.	*the goal and consider changing either goal or treatment accordingly.*[29]
2.1 Monitoring of behaviour by others - not tailored	NT_HP_2.1	Must be active and in service of changing behaviour, not simply routine data collection that is already in place.	*First, the care manager had weekly meetings with a support team…. who reviewed the care of new and active patients and monitored adherence to the standard protocols. Web-based longitudinal tracking system that managed the schedule for patient contacts, tracked the patient's progress and current treatments, and provided an instrument for communicating the patient's and caregiver's current clinical status to the entire care team*[20]
2.2 Feedback on behaviour – tailored/not tailored	T_HP_2.2/ NT_HP_2.2	Coded only when there was clear feedback about behaviour. This code implies a monitoring process providing feedback.	*Physicians in the quality improvement program were given performance feedback based on several quality measures…an achievable benchmark for each indicator in the final report was mailed to physicians…*[74]
2.4 Self-monitoring of outcome(s) of behaviour – not tailored	NT_HP_2.4	The person is asked to keep a record of specified measures expected to be influenced by the behaviour change, e.g., blood pressure, blood glucose, weight loss, physical fitness.	*Medical assistants monitored goal achievement and symptom deterioration either face-to-face with patients in the clinic or by telephone using paper-based checklists. Monitoring intervals were tailored to the patient's health status but were scheduled at least once every 6 weeks. Primary care physicians met with medical assistants weekly to review patient progress.*[48]
2.5 Monitoring outcome(s) of behavior by others without feedback	NT_HP_2.5	Observe or record outcomes of behavior with the person's knowledge as part of a behavior change strategy.	*Alerts were automatically transmitted via text message to the responsible physician but were 'silent' (inaudible) to the patient.*[11]
2.7 Feedback on outcome(s) of behaviour – tailored/not tailored	T_HP_2.7/ NT_HP_2.7	This involves providing the participant with data about their own recorded behaviour or commenting on a person's behavioural performance (e.g., identifying a discrepancy with between behavioural performance and a set goal	*Practices were given summary audit results at a practice meeting (one practice requested written material only)… Anonymized data from other practices in the study were given for comparison.*[101]
3.1 Social support (unspecified) – tailored	T_HP_3.1	Advise on, arrange or provide social support (e.g., from friends, relatives, colleagues,' buddies' or staff) or non-contingent praise or reward for performance of the behavior.	*Counseling and individual coaching were provided after class...Two monthly support calls for 6 consecutive months after the end of the systematic classroom course.*[71]
3.2 Social support (practical) – not tailored	NT_HP_3.2	Advise on, arrange, or provide practical help (e.g., from friends, relatives, colleagues, 'buddies' or staff) for performance of the behavior	*All providers on the intervention teams agreed that AIM pharmacists assigned to their teams could proactively reach out to eligible patients…. pharmacists were authorized to make medication changes; at all sites the clinical pharmacists copied the participating patient's assigned provider on all of that*

Component	CODE	Description	Example
			patient's clinical notes and alerted the PCP when one of that PCP's patients declined participation in the program, entered the program, or was discharged….[56]
4.1 Instruction on how to perform a behaviour – not tailored	NT_HP_4.1	Involves telling the person how to perform behaviour or preparatory behaviours, either verbally or in written form.	*In addition to providing patients with information, heart failure nurses were trained to increase patient self-efficacy…*[67]
6.1 Demonstration of the behavior	NT_HP_6.1	Provide an observable sample of the performance of the behaviour, directly in person or indirectly e.g., via film, pictures, for the person to aspire to or imitate or model	*Occupational therapists received a training which included 5-7 coaching-on-the-job sessions led by a study expert* [35]
6.2 Social comparison – not tailored	NT_HP_6.2	Draw attention to others' performance to allow comparison with the person's own performance Note: being in a group setting does not necessarily mean that social comparison is actually taking place	*Practices were given summary audit results at a practice meeting (one practice requested written material only)… Anonymized data from other practices in the study were given for comparison.*[101]
7.1 Prompts/cues – tailored/not tailored	T_HP_7.1/ NT_HP_7.1	Introduce or define environmental or social stimulus with the purpose of prompting or cueing the behavior. The prompt or cue would normally occur at the time or place of performance	*Automatic alerts were generated and presented to the nurses if the signals were out of the patient-specific present range*[69]
8.1 Behavioral practice/ rehearsal	NT_HP_8.1	Prompt practice or rehearsal of the performance of the behavior one or more times in a context or at a time when the performance may not be necessary, in order to increase habit and skill	*Ten staff members, two from each intervention care home, attended the basic and advanced training given by research group and became certified dementia-care mappers. Advanced users are able to observe, report, provide feedback to the staff, and instruct and support them in drawing up action plans.* [145]
9.1 Credible source – tailored/not tailored	T_HP_9.1/ NT_HP_9.1	Present verbal or visual communication from a credible source in favour of or against the behavior. Consider national organisations, national guidelines and respected peers as credible sources.	*Providers in control clinics were sent a link to an existing VA Web site that contained links to a wide range of clinical guidelines for various medical conditions*[82]
10.1 Material incentive (behaviour) – not tailored	NT_HP_10.1	Inform that money, vouchers or other valued objects will be delivered if and only if there has been effort and/or progress in performing the behavior (includes 'Positive reinforcement')	*Practices were remunerated so that there was no cost to the patient for COPD-related GP consultations*[117]
12.1 Restructuring the physical environment – tailored/not tailored	T_HP_12.1/ NT_HP_12.1	Change, or advise to change the physical environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards and punishments).	*Care planning templates were provided in an electronic form for use by the nurse and GP in computerized clinical record systems. The templates were designed for smokers and non-smokers respectively and had prompts for assessment, goals and actions based on the COPD guidelines.*[158]

Component	CODE	Description	Example
		Code only if it is a change to an existing physical or virtual (i.e., software/web) structure	
12.2 Restructuring the social environment – tailored/not tailored	T_HP_12.2/ NT_HP_12.2	Change, or advise to change the social environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards and punishments)	*Accessibility to the specialised nurse at the hospital was ensured for primary care professionals during the follow-up period through an ICT platform including a web-based call centre.*[58]
12.5 Adding objects to the environment – not tailored	NT_HP_12.5	Code for the addition of new physical or virtual (software) aimed at facilitating behaviour change. If something existing is changed, consider coding to Restructuring physical environment.	*Medical coordinator discussed and agreed guidelines for secondary prevention with the practice doctors and gave ongoing support in setting up a register and recall system for regular review of patients with coronary heart disease by their general practitioner.*[101]
13.2 Umbrella term - Clinician/staff education – tailored/not tailored	T_HP_13.2/ NT_HP_13.2	Unclear description	*Staff from each organization notified the study data manager of eligible patients and who were then randomized to either study arm -Enhanced Usual Care (EUC) which included routine depression screening and staff training in depression care*[40]
QI strategies targeting caregivers			
1.2 Problem solving	NT_C_1.2	Analyse, or prompt the person to analyse, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators	*In the office setting, a master's-prepared health educator–interventionist met with the caregiver to discuss his or her problems and the appropriate pamphlets or strategies for addressing them, while a research specialist sat with the care recipient*[19]
1.3 Goal setting (outcome)	NT_C_1.3	Set or agree on a goal defined in terms of a positive outcome of wanted behavior	*The intervention protocol called for the care consultant to have monthly contact for 12 months with each family caregiver. Responsibilities at each contact were to determine which aspects of dementia symptoms and care responsibilities caused caregiver concerns, discuss action steps to address caregiver concerns, and compose a written care plan* [47]
1.4 Action planning	NT_C_1.4	Prompt detailed planning of performance of the behavior (must include at least one of context, frequency, duration and intensity).	*The care manager collaborated with the caregiver to prioritize problem areas; teach problem-solving skills; initiate care plan actions; and send an assessment summary, a problem list, and selected recommendations to the patient's primary care physician and other designated providers. A menu of potential care plan actions (for example, referral for respite care services) was documented in a comprehensive care management manual.*[148]
2.4 Self-monitoring of outcome(s) of	NT_C_2.4	The person is asked to keep a record of specified measures expected to be influenced by the	*At each contact with the care manager, caregivers completed the Memory and Behavior Problems Checklist to assess current*

Component	CODE	Description	Example
behaviour – not tailored		behaviour change, e.g., blood pressure, blood glucose, weight loss, physical fitness.	*symptoms and stressors. Based on the caregiver's responses, individualized recommendations were made regarding how to manage a patient's behavioral symptoms.*[20]
3.1 Social support (unspecified) – tailored	T_C_3.1	Advise on, arrange or provide social support (e.g., from friends, relatives, colleagues,' buddies' or staff) or non-contingent praise or reward for performance of the behavior.	*The minimum care plan for all family caregivers included the action steps that family caregivers should take to learn more about or use; key information about the clinical course of the disease process; legal and financial planning issues; family support groups; dementia educational programs offered by the chapter and other organizations; adult day care services; and respite care services. The care consultant's initial and final meetings with family caregivers occurred in the home of the family caregiver and/or patient.* [47]
4.1 Instruction on how to perform a behaviour – not tailored	NT_C_4.1	Involves telling the person how to perform behaviour or preparatory behaviours, either verbally or in written form.	*Participants were mailed instructions on the IVF monitoring and provided 12 months of self-management support phone calls.*[114]
7.1 Prompts/cues	NT_C_7.1	Introduce or define environmental or social stimulus with the purpose of prompting or cueing the behavior. The prompt or cue would normally occur at the time or place of performance	*Patients received weekly IVR monitoring and self-management support calls for 12 months. IVR calls included recorded information and questions that patients answered using their touchtone keypad. Calls lasted roughly 10 minutes and followed a tree-structured algorithm to ask about overall health, HF symptoms, and self-management behaviors.*[114]
11.2 Reduce negative emotions – not tailored/not tailored	NT_C_11.2	Advise on ways of reducing negative emotions to facilitate performance of the behavior (includes 'Stress Management')	*Relevant issues were identified (e.g., management of patient behavior problems, coping with feelings of guilt) and the counselor motivated the family to form ideas to help the caregiver and to delegate tasks. The follow up meetings reviewed the previous session, previous commitments and the progress of tasks. Ad hoc telephone counseling from the same counselor was available to caregivers and their families beyond the scheduled sessions.*[68]
12.2 Restructuring the social environment	NT_C_12.2	Change, or advise to change the social environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards and punishments)	*All dyads received mailed monthly personalized letters with information on signs and symptoms of stroke, stroke prevention, stress reduction strategies, diet and exercise guidelines, links to support groups and advocacy organizations, and tips for leisure activity adaptations.* [111]
13.1 Identification of self as role model	NT_C_13.1	Inform that one's own behavior may be an example to others	*Care partners received guidelines about how to communicate in a positive motivating way, avoid conflict by respecting boundaries, include in-home caregivers, and respect confidentiality. Patients*

Component	CODE	Description	Example
			received a notebook including reminders and tips for their weekly patient-care partner calls. [114]
13.3 Umbrella term - Caregiver training/support – not tailored	NT_C_13.3	Unclear description	*During these sessions, caregivers were taken to a support session led by a social psychologist that focused on caregiver stress.*[20]
QI strategies targeting patients			
1.1 Goal setting (behaviour) – tailored/not tailored	T_P_1.1/ NT_P_1.1	The individual is encouraged to make a behavioural resolution. This is directed towards encouraging people to decide to change or maintain change.	*The intervention aimed to empower patients to manage their COPD independently by improving their understanding of disease and monitoring of symptoms by developing their confidence to carry out appropriate actions, such as altering treatment early in the evolution of an exacerbation…*[17]
1.2 Problem solving	NT_P_1.2	Analyse, or prompt the person to analyse, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators	*A patient self management group session (45 minutes), led by a team nurse or social worker, that emphasized self-management skills and group problem-solving for chronic health problems (individual groups were encouraged to select the topics, some of which included physical activity, nutrition, and advanced care planning)* [26]
1.3 Goal setting (outcomes) – tailored/not tailored	T_P_1.3/ NT_P_1.3	The individual is encouraged to set a general goal that can be achieved by behavioural means but is not defined in terms of behaviour (e.g., lose/maintain weight). The goal may be an expected consequence of one or more behaviours, but is not a behaviour per se. Use content of reported outcomes to decide whether to code Goal setting (outcome) and/or Goal setting (behaviour).	*Patients were provided with a welcome packet…which included mailed with an introduction letter from the pharmacist and educational materials, including instructions for home monitoring and documents to record BPs and action plans…*[56]
1.4 Action planning – tailored/not tailored	T_P_1.4/ NT_P_1.4	Prompt detailed planning of performance of the behavior (must include at least one of context, frequency, duration and intensity). Context may be environmental (physical or social) or internal (physical, emotional or cognitive) (includes 'Implementation Intentions')	*An individualized exercise plan was developed with the participants...Participants were encouraged to complete endurance exercises at least four times per week for 30 minutes per session and arm strengthening exercises at least three*[106]
1.5 Review behavior goal(s)	NT_P_1.5	Review behavior goal(s) jointly with the person and consider modifying goal(s) or behavior change strategy in light of achievement. This may lead to re-setting the same goal, a small change in that goal or setting a new goal instead of (or in addition to) the first, or no change	*OTs used behavioral activation techniques (ie, defining a goal and taking steps to achieve it) to reinforce action plans to increase medication adherence. For example, morning medications were placed by a coffee maker and embedded within the morning routine (e.g., "I turn on the coffee maker take my pills and mark the check sheet on the refrigerator."). If pills*

Component	CODE	Description	Example
			needed to be transferred to a pill organizer, the OTs supervised the transfer based on the medication prescription. [119]
1.7 Review outcome goal(s) – tailored/not tailored	T_P_1.7/ NT_P_1.7	Involves a review or analysis of the extent to which previously set outcome goals (e.g., to reduce blood pressure or lose/maintain weight) were achieved. In most cases, this will follow previous goal setting (see technique 6, goal setting-outcome') and an attempt to act on those goals, followed by a revision of goals, and/or means to attain them.	*Intervention patients visited the practice nurse monthly to review their progress and visited the GP 3 monthly and at other times if worsening symptoms demanded more visits*[117]
2.1 Monitoring of behaviour by others – tailored/not tailored	T_P_2.1/ NT_P_2.1	Must be active and in service of changing behaviour, not simply routine data collection that is already in place.	*During training, a qualified exercise specialist closely supervised patients in a ratio of 4 to 5 participants for 1 trainer.*[91]
2.2 Feedback on behaviour – tailored/not tailored	T_P_2.2/ NT_P_2.2	Coded only when there was clear feedback about behaviour. This code implies a monitoring process providing feedback.	*The nurses used this information to provide individualized feedback and reinforcement to participants regarding their use of dyspnea management strategies and exercise progress via email or telephone weekly for the first month and then biweekly for 11 months.*[106]
2.3 Self-monitoring of behaviour – tailored/not tailored	T_P_2.3/ NT_P_2.3	Establish a method for the person to monitor and record their behavior(s) as part of a behavior change strategy	*Participants completed paper diaries [tracking symptoms (dyspnea, cough) and exercise (mode, duration, and worst dyspnea), and reasons for not exercising;] and mailed them back weekly to the study office.*[106]
2.4 Self-monitoring of outcome(s) of behaviour – not tailored	NT_P_2.4	The person is asked to keep a record of specified measures expected to be influenced by the behaviour change, e.g., blood pressure, blood glucose, weight loss, physical fitness.	*Using the touch screen telemonitoring equipment, the participant recorded and transmitted a daily questionnaire about symptoms and use of treatment, and monitored oxygen saturation using linked validated instruments*[115]
2.5 Monitoring of outcome(s) of behaviour without feedback – not tailored	NT_P_2.5	Observe or record outcomes of behavior with the person's knowledge as part of a behavior change strategy	*A written list of recommendations, a weight chart, a contact number available 6 h/day, and an educational booklet were provided only to these patients. They were encouraged to present their discharge/visit summary and weight chart at all visits*[33]
2.7 Feedback on outcome(s) of behaviour – not tailored	NT_P_2.7	Coded only when there is clear feedback about outcomes. This code implies a monitoring process providing the feedback data.	*Patients were provided with feedback on blood pressure and blood levels*[56]

Component	CODE	Description	Example
3.1 Social support (unspecified) – tailored/not tailored	T_P_3.1/ NT_P_3.1	Advise on, arrange or provide social support (e.g., from friends, relatives, colleagues,' buddies' or staff) or non-contingent praise or reward for performance of the behavior.	*During the 20-month active maintenance phase, patients visited the physiotherapist once a month to monitor exercise capacity and adherence to the training and to provide encouragement to continue the exercise training at home.*[147]
3.2 Social support (practical) – tailored/not tailored	T_P_3.2/ NT_P_3.2	Advise on, arrange, or provide practical help (e.g., from friends, relatives, colleagues, 'buddies' or staff) for performance of the behavior	*Home visits (0 to 4) and telephone calls (at least every 3 months) were carried out according to patient need and patient risk level, which was assessed by the study nurse during the first home visit based on compliance, the social network, and the comorbidities.*[98]
4.1 Instruction on how to perform a behaviour – tailored/not tailored	T_P_4.1/ NT_P_4.1	Involves telling the person how to perform behaviour or preparatory behaviours, either verbally or in written form.	*Patients in both groups received an educational packet describing the causes of HF, the basic principles of treatment, their role in routine care and monitoring of their condition, and appropriate strategies for managing a HF exacerbation*[37]
4.2 Information about antecedents - not tailored	NT_P_4.2	Provide information about antecedents (e.g., social and environmental situations and events, emotions, cognitions) that reliably predict performance of the behaviour	*Primary care providers met with patients and discussed how behaviours impacted their current systolic blood pressure results*[56]
5.1 Information about health consequences – tailored/not tailored	T_P_5.1/ NT_P_5.1	Provide information (e.g., written, verbal, visual) about health consequences of performing the behavior	*Subjects in both arms began to receive mailings regarding osteoporosis. During the course of the study, all subjects received 7 informational mailings covering topics such as exercise, fall prevention, and recommended calcium intake*[133]
6.1 Demonstration of the behaviour – not tailored	NT_P_6.1	Provide an observable sample of the performance of the behaviour, directly in person or indirectly e.g., via film, pictures, for the person to aspire to or imitate (includes 'Modelling')	*The class included varied methods such as specialized lectures, small group discussions, physical demonstrations, live presentations, and games with prizes.*[83]
7.1 Prompts/cues – not tailored	NT_P_7.1	Introduce or define environmental or social stimulus with the purpose of prompting or cueing the behavior. The prompt or cue would normally occur at the time or place of performance	…the exercise trainer made weekly telephone calls to reinforce the importance of the exercises and to detect problems...The case manager contacted patients of both groups every 2 months to reinforce mastery of the intended behavior (home exercises 3 times per week).[91]
9.1 Credible source – not tailored	NT_P_9.1	Present verbal or visual communication from a credible source in favour of or against the behavior. Consider national organisations, national guidelines and respected peers as credible sources.	*Input was provided from a pharmacist, cardiac rehabilitation specialist nurse, dietician, welfare benefits advisor and Recreation Services*[28]
10.1 Material incentive (behavior)	NT_P_10.1	Inform that money, vouchers or other valued objects will be delivered if and only if there has been effort and/or progress in performing the behavior (includes 'Positive reinforcement')	*Healthcare logs and diaries were returned monthly in stamped, self-addressed envelopes to the appropriate project director and all patients were compensated $25.00 per visit*[36]
11.1 Pharmacological	T_P_11.1/ NT_P_11.1	Provide, or encourage the use of or adherence to, drugs to facilitate behavior change	*The usual care group received pharmacotherapy according to accepted guidelines*[147]

Component	CODE	Description	Example
support – tailored/not tailored			
11.2 Reduce negative emotions	NT_P_11.2	Advise on ways of reducing negative emotions to facilitate performance of the behavior	*Patients received cognitive coping skills training to identify and challenge negative COPD-related cognitions that impede self management* [152]
12.1 Restructuring the physical environment – not tailored	NT_P_12.1	Change, or advise to change the physical environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards and punishments)	*Patients received a home assessment which focused on lighting and safety... and modified when necessary*[4]
12.2 Restructuring the social environment – tailored/not tailored	T_P_12.2/ NT_P_12.2	Change, or advise to change the social environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards and punishments)	*A case manager was added to the team to provide additional support for patients*[41]
12.5 Adding objects to the environment – tailored/not tailored	T_P_12.5/ NT_P_12.5	Code for the addition of new physical or virtual (software) aimed at facilitating behaviour change. If something existing is changed, consider coding to Restructuring physical environment.	*Blood pressure monitors were given to patients to take home.*[56]
12.6 Body changes –tailored/not tailored	T_P_12.6/ NT_P_12.6	Alter body structure, functioning or support directly to facilitate behavior change	*Participants were enrolled in an exercise program to lose weight*[4]
13.1 Umbrella term - Patient education – not tailored	NT_P_13.1	Unclear description	*All participants received a general information booklet for patients with COPD and had access to an existing VA 24-hour help line for any medical questions about their COPD*[41]
14.1 Insufficient description – not tailored	NT_P_14.1	Unclear description	The case management was not well reported[84]

NOTE: Only codes encountered and used more than twice in the data set are reported in this table.

Abbreviations: QI, Quality Improvement

Appendix 8: List of Included Studies

1. Ansari M, Shlipak MG, Heidenreich PA, Van Ostaeyen D, Pohl EC, Browner WS, Massie BM. Improving guideline adherence: a randomized trial evaluating strategies to increase β-blocker use in heart failure. Circulation. 2003 Jun 10;107(22):2799-804.

2. Baker R, Fraser RC, Stone M, Lambert P, Stevenson K, Shiels C. Randomised controlled trial of the impact of guidelines, prioritized review criteria and feedback on implementation of recommendations for angina and asthma. British Journal of General Practice. 2003 Apr 1;53(489):284-91.

3. Batchelor FA, Hill KD, Mackintosh SF, Said CM, Whitehead CH. Effects of a multifactorial falls prevention program for people with stroke returning home after rehabilitation: a randomized controlled trial. Archives of physical medicine and rehabilitation. 2012 Sep 1;93(9):1648-55.

4. Beck A, Scott J, Williams P, Robertson B, Jackson D, Gade G, Cowan P. A randomized trial of group outpatient visits for chronically ill older HMO members: the Cooperative Health Care Clinic. Journal of the American Geriatrics Society. 1997 May;45(5):543-9.

5. Beck CA, Beran DB, Biglan KM, Boyd CM, Dorsey ER, Schmidt PN, Simone R, Willis AW, Galifianakis NB, Katz M, Tanner CM. National randomized controlled trial of virtual house calls for Parkinson disease. Neurology. 2017 Sep 12;89(11):1152-61.

6. Bekelman DB, Plomondon ME, Carey EP, Sullivan MD, Nelson KM, Hattler B, McBryde CF, Lehmann KG, Gianola K, Heidenreich PA, Rumsfeld JS. Primary results of the patient-centered disease management (PCDM) for heart failure study: a randomized clinical trial. JAMA internal medicine. 2015 May 1;175(5):725-32.

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8. Blue L, Lang E, McMurray JJ, Davie AP, McDonagh TA, Murdoch DR, Petrie MC, Connolly E, Norrie J, Round CE, Ford I. Randomised controlled trial of specialist nurse intervention in heart failure. BMJ. 2001 Sep 29;323(7315):715-8.

9. Bohingamu Mudiyanselage S, Stevens J, Watts JJ, Toscano J, Kotowicz MA, Steinfort CL, Bell J, Byrnes J, Bruce S, Carter S, Hunter C. Personalised telehealth intervention for chronic disease management: a pilot randomised controlled trial. Journal of telemedicine and telecare. 2019 Jul;25(6):343-52.

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11. Bosanquet K, Adamson J, Atherton K, Bailey D, Baxter C, Beresford-Dent J, Birtwistle J, Chew-Graham C, Clare E, Delgadillo J, Ekers D. Collaborative care for screen-positive elders with major depression

(CASPER plus): a multicentred randomised controlled trial of clinical effectiveness and cost-effectiveness. Health Technology Assessment (Winchester, England). 2017 Nov;21(67):1-251.

12. Bourbeau J, Julien M, Maltais F, Rouleau M, Beaupré A, Bégin R, Renzi P, Nault D, Borycki E, Schwartzman K, Singh R. Reduction of hospital utilization in patients with chronic obstructive pulmonary disease: a disease-specific self-management intervention. Archives of internal medicine. 2003 Mar 10;163(5):585-91.

13. Boyne JJ, Vrijhoef HJ, Crijns HJ, De Weerd G, Kragten J, Gorgels AP, TEHAF investigators. Tailored telemonitoring in patients with heart failure: results of a multicentre randomized controlled trial. European journal of heart failure. 2012 Jul;14(7):791-801.

14. Bruce ML, Ten Have TR, Reynolds III CF, Katz II, Schulberg HC, Mulsant BH, Brown GK, McAvay GJ, Pearson JL, Alexopoulos GS. Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: a randomized controlled trial. JAMA. 2004 Mar 3;291(9):1081-91.

15. Bruce ML, Raue PJ, Reilly CF, Greenberg RL, Meyers BS, Banerjee S, Pickett YR, Sheeran TF, Ghesquiere A, Zukowski DM, Rosas VH. Clinical effectiveness of integrating depression care management into medicare home health: the Depression CAREPATH Randomized trial. JAMA Internal Medicine. 2015 Jan 1;175(1):55-64.

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Appendix 9. Individual Study Characteristics

Author, year (*companion report ref. number*)	**Study duration**	**KT Intervention name**	**Duration of KT Intervention**	**Intervention (EPOC) components**	**Intervention (BCT) components**	**Outcomes included in analysis***	**Setting**	**Funding**
Ansari, 2003[43]	Oct 1998 to Apr 2001 (30 months)	Clinician education+patient registry; Clinician education+nurse facilitator; Clinician education		staff+clin_reminder+px_reminder; team+staff+case-M; staff	NT_HP_1.1+NT_HP_2.3 +NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1+NT_HP_12.1+NT_HP_12.2+NT_HP_12.5+NT_P_7.1; NT_HP_3.2+NT_HP_4.1+NT_HP_9.1+NT_HP_12.2; NT_HP_4.1+NT_HP_9.1+NT_HP_13.2	Quality of care; Assessed adherence	NR	Governmental/Public funding
Baker, 2003[44]	NR	Review + feedback; Review; Guideline alone	12 months	AF+staff; staff; staff	NT_HP_1.3+T_HP_2.2+NT_HP_6.2; NT_HP_1.3+NT_HP_9.1; NT_HP_1.3+NT_HP_9.1	Quality of care; Assessed adherence	NA	Governmental/Public funding
Batchelor, 2012[45]	NR	Exercise program; Control		Self-M+px_educ; px_educ; px_educ	NT_P_1.1+T_P_1.4+NT_P_2.3 +NT_P_2.7+NT_P_12.1+T_P_12.6; NT_P_2.3	Assessed adherence; Assessed sustainability	home	Governmental/Public funding
Beck, 1997[46]	NR	Group visits; Control	12 months	team+case-M+px_educ;	NT_P_4.1+NT_P_12.2	Quality of care	clinic	Mixed
Beck, 2017[47] (*CR9*)	NR	Virtual home visit; Usual care	12 months	team+case-M+px_finan	NT_P_4.1+NT_P_12.2	EQ5D	NA	Research funding body
Bekelman, 2015[48]	NR	Patient-Centered Disease Management (PCDM) intervention; Usual care		team+relay+staff+case-M+Self-M+px_reminder+px_educ; px_educ	NT_HP_1.2+NT_HP_4.1+NT_P_7.1+T_P_11.1; NT_P_4.1+NT_P_7.1+NT_P_12.1+NT_P_13.1		home, clinic	Governmental/Public funding
Benzo, 2016[49]	Sep 2010-Aug 2014 (47 months)	Health coaching; Usual care	12 months	relay+staff+case-M+Self-M+mot_interview; staff	NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_6.1 +NT_P_12.2+NT_P_12.5+NT_P_12.6	Assessed adherence; Assessed fidelity	home, clinic	Governmental/Public funding
Blue, 2001[50]	NR	Home visits; Control	12 months	case-M+Self-M+px_educ	NT_P_2.4+T_P_3.2+NT_P_4.1+T_P_5.1	Assessed sustainability	home	Governmental/Public funding
Bohingamu, 2019[50, 51]	NR	Patient education; Usual care	12 months	relay+case-M+Self-M+px_educ	T_P_1.3 +NT_P_2.7+NT_P_4.1+NT_P_12.1+NT_P_12.2		home	Mixed
Bohm, 2016[50, 52]	NR	Telemedicine alerts; Control		team+relay+case-M	NT_HP_2.5+NT_HP_7.1	Assessed sustainability	home	Commercial
Community Pharmacy Medicines	Nov 2002 to May 2004 (18 months)	Pharmacist management; Usual care		team+px_educ	T_HP_12.2	EQ5D	community	Governmental/Public funding

Author, year (*companion report ref. number*)	**Study duration**	**KT Intervention name**	**Duration of KT Intervention**	**Intervention (EPOC) components**	**Intervention (BCT) components**	**Outcomes included in analysis***	**Setting**	**Funding**
Management Project Evaluation Team, 2007 [53]								
Bosanquet, 2017[54]	NR	Collaborative care; Usual care	18 months	team+EPR+relay+case-M+Self-M	NT_HP_2.4 +NT_HP_2.7+NT_HP_4.1+NT_HP_12.5+NT_P_1.2+NT_P_1.3+NT_P_4.1+NT_P_12.2+NT_P_12.5	SF-12 mental; SF-12 physical; Assessed adherence; Assessed fidelity	NR	Governmental/Public funding
Bourbeau, 2003[55] (*CR4, 13*)	Feb 1998 to Jul 1999 (17 months)	Provider education; Usual care	7-8 week long programme + telephone calls, monthly calls for rest of 12 months	case-M+Self-M+px_educ	NT_P_1.4+T_P_2.3	SGRQ; Assessed sustainability	clinic, home	Mixed
Boyne, 2012[56] (*CR5*)	NR	Telemonitoring; Control	12 months	relay+px_educ; staff+px_educ	NT_P_2.7+NT_P_4.1+NT_P_12.5; NT_P_4.1	Assessed adherence	home, clinic	Mixed
Bruce, 2004[57] (*CR1, 2, 14*)	NR	Prospect; Control	12-24 months	hs finan+team+relay+staff+case-M; relay+staff	NT_HP_3.2+NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1+NT_P_12.2; NT_HP_4.1+NT_HP_7.1		NR	Mixed
Bruce, 2015[58]	NR	Protocol development; Control	12 months	team+staff+case-M+Self-M+px_educ	NT_HP_3.2+NT_HP_4.1+NT_HP_12.1+NT_P_1.3+NT_P_4.1 + NT_P_12.2; NT_HP_4.1+NT_HP_12.1	Assessed adherence	home	Governmental/Public funding
Bucknall, 2012[59]	Jun 2007 to May 2010 (35 months)	Patient education; Usual care	training sessions for 2 months; home visits for a total of 12 months	case-M+Self-M	NT_P_1.1+NT_P_2.4+NT_P_2.7+NT_P_3.1+T_P_4.1	EQ5D (a); SGRQ; Assessed sustainability	home	Mixed
Burns, 1995[60] (*CR6*)	NR	Comprehensive assessment; Control	36 months	team+case-M	NT_HP_1.1+NT_HP_1.3+NT_P_1.1+NT_P_1.3+NT_P_12.2		clinic	Voluntary body
Burns, 2003[61]	NR	Enhanced care; Behavior care	24 months	Self-M+px_educ+mot_interview; Self-M+px_educ+mot_interview	NT_C_1.2+NT_C_1.3 +NT_C_1.4+NT_C_4.1; NT_C_1.2+NT_C_1.3 +NT_C_4.1+NT_C_13.1		NA	Governmental/Public funding
Callahan, 2006[62]	NR	Collaborative care; Control	12 months	team+EPR+case-M+Self-M+px_educ	NT_HP_2.1+NT_HP_12.2+T_C_2.2+NT_C_3.1+NT_C_13.3; NT_C_3.1		NR	Governmental/Public funding
Campbell, 1998[63]	NR	Nurse-led clinic; Control	12 months	staff+case-M+Self-M+px_educ	NT_HP_4.1+NT_HP_12.2+NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2+NT_P_12.6		clinic	Governmental/Public funding

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Chen, 2015[36]	Jan 2011 to Nov 2013 (34 months)	Collaborative-care depression care management (DCM) intervention; Usual care	12 months	team+staff+case-M+px_reminder+px_educ; staff	NT_HP_1.2+NT_HP_4.1+NT_HP_9.1+NT_HP_12.2+NT_HP_13.2+NT_P_2.5+NT_P_4.1+NT_P_7.1+NT_P_12.2; NT_HP_9.1	Assessed adherence	clinic	Governmental/Public funding
Chi, 2012[64]	NR	Self-care education; Usual care	NR	Self-M	NT_P_2.3	MLHFQ	home	NR
Ciaschini, 2010[65]	NR	Guideline-based care; Usual care	NR	staff+Self-M+px_educ	NT_HP_4.1+NT_P_1.3+NT_P_4.1		home, clinic	Mixed
Cleveringa, 2008[66] (*CR7,8*)	NR	Physician support; Control	12 months	AF+staff	NT_HP_4.1+NT_HP_6.2+NT_HP_12.2		NR	Commercial
Coleman, 1999[67]	NR	Care team; Usual care	24 months	team+staff+case-M+Self-M	NT_HP_1.1+NT_HP_1.2+NT_HP_4.1+NT_HP_12.2+NT_P_1.2+NT_P_1.3+NT_P_4.1+NT_P_12.2		NA	Research funding body
Coull, 2004[68]	NR	Health mentors; Usual care	12 months	Self-M+px_educ+px_finan	NT_P_2.5+T_P_5.1+NT_P_9.1+NT_P_13.1		NR	Mixed
de la Porte, 2007[69]	NR	HF clinic follow-up; Usual care	12 months	team+case-M+Self-M+px_educ	NT_P_1.1+NT_P_2.5+NT_P_4.1+NT_P_12.2	MLHFQ; Defined Sustainability; Assessed adherence, Assessed sustainability	clinic	Commercial
de Lusignana, 2013[70]	NR	Audit-based education; Guidelines; Control	24 months	EPR+relay+AF+staff; staff+clin_reminder	T_HP_2.7+NT_HP_3.2+NT_HP_6.2; NT_HP_4.1+NT_HP_7.1	Assessed adherence; Assessed fidelity	NA	Mixed
DeBusk, 2004[71]	NR	Nurse care management; Control	12 months	relay+case-M+Self-M+px_educ; px_educ	NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2		home, clinic	Governmental/Public funding
Del Sindaco, 2007[72]	NR	Team management; Usual care	24 months	team+case-M+px_reminder+px_educ	NT_HP_3.2+NT_P_2.5+NT_P_3.2 +NT_P_13.1; NT_P_13.1		hospital, clinic	NR
DeVore, 2015[73]	Oct 2009 to Mar 2011 (17 months)	Personalized reporting; Control	NR	EPR+relay+cQI+AF+staff; EPR+relay+cQI+AF	NT_HS_1.1+NT_HS_1.3+NT_HS_2.1+NT_HS_2.2+NT_HS_2.7+NT_HS_4.1+NT_HS_12.5; NT_HS_1.1+NT_HS_2.1	Assessed adherence	hospital	Governmental/Public funding
Dopp, 2015[74]	Jan 2009 to Dec 2011 (35 months)	Complex training; Usual care	12 months	EPR+staff+mot_interview; staff	NT_HP_1.2+NT_HP_4.1+NT_HP_6.1+NT_HP_8.1+NT_HP_12.5; NT_HP_4.1+NT_HP_6.1	Assessed adherence	NA	Mixed
Dracup, 2014[42] (*CR28*)	Sep 2006 to Jan 2012 (64 months)	Fluid Watchers PLUS; Fluid	24 months	relay+case-M+Self-M+px_reminder+px_educ+px_finan; relay+Self-	NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_10.1 +NT_P_12.2+NT_P_12.5;	Assessed sustainability	home, clinic	Governmental/Public funding

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		Watchers LITE; Control		M+px_reminder+px_educ+ px_finan; px_educ	NT_P_1.3+NT_P_2.4+NT_P_4 .1+NT_P_9.1+NT_P_10.1 +NT_P_12.2+NT_P_12.5; NT_P_4.1+NT_P_9.1			
Dunagan, 2005[75]	NR	Telephone support; Educational materials	12 months	relay+case-M+Self-M+px_educ; relay+px_educ	NT_P_4.1+NT_P_5.1+NT_P_1 2.2; NT_P_4.1+NT_P_5.1+NT_P_1 3.1	SF-12 mental; SF-12 physical MLHFQ; (b)	NR	Mixed
Eccles, 2007[34] (*CR38*)	Apr 2002 to June 2003 (14 months)	Patient register; Usual care	15 months	EPR+staff+clin_reminder+ px_reminder	NT_HP_4.1+NT_HP_7.1 +NT_HP_12.1	SF-36 mental; SF-36 physical; Quality of care; Assessed adherence	clinic	Governmental/Public funding
Eckert, 2010[76]	NR	Comprehensive care; Control	NR	staff	NT_HP_4.1+T_P_3.2		NR	NR
Ell, 2007[77]	NR	Medication-enhanced usual care; Enhanced usual care	12 months	relay+cQI+staff; staff	NT_HP_12.2+NT_HP_13.2; NT_HP_13.2	Assessed adherence	home	Governmental/Public funding
Fan, 2012[78]	Jan 2007 to 27 Feb 2009 (26 months)	Patient education; Usual care	1 month education sessions; 12 months phone calls	team+staff+case-M+Self-M+px_educ; staff+px_educ	T_P_3.1+T_P_3.2+T_P_4.1 +NT_P_12.2; NT_P_13.1	SGRQ; Assessed adherence; Assessed fidelity	home, clinic	Governmental/Public funding
Federman, 2019[79]	NR	Patient education; Usual care	12 months	Self-M+px_reminder+px_educ	NT_P_1.2+NT_P_1.3+NT_P_1 .7+NT_P_4.1+NT_P_12.2		home, clinic	Voluntary body
Fihn, 2004[80]	NR	Clinician reporting; Usual care	18-24 months	AF+staff	NT_HP_4.1+NT_HP_6.2+NT_ HP_7.1	SF-36 mental; SF-36 physical	NA	Governmental/Public funding
Fihn, 2011[81]	Mar 1997 to Dec 1999 (33 months)	Team care; Usual care	12 months	team+relay+case-M+px_educ	T_HP_1.1+NT_HP_12.2+NT_ P_13.1	Assessed adherence	clinic	Governmental/Public funding
Forster, 1996[82]	NR	Specialist nurse support; Control	12 months	staff+case-M+Self-M+px_educ	NT_HP_8.1+NT_P_1.2+NT_P _1.3+NT_P_1.4+NT_P_4.1+N T_P_12.2+T_P_12.5	Defined Sustainability; Assessed adherence	home	Charitable trust
Forster, 2015[83]	Jul 2009 to May 2012 (34 months)	Care plan; Usual care	12 months	team+case-M+Self-M+px_educ	NT_P_1.2+NT_P_1.3+NT_P_1 .4+NT_P_4.1+NT_P_7.1+NT_ P_12.2	EQ5D	NA	Governmental/Public funding
Fortinsky, 2009[84]	NR	Dementia care consultation; Control	12 months	relay+case-M+Self-M+px_educ; staff	NT_C_1.2+NT_C_1.3 +NT_C_1.4+NT_C_4.1+NT_C _12.2	Assessed sustainability	NA	Voluntary body
Freund, 2016[85]	Jul 2010 to Jun 2013 (35 months)	Health coach; Usual care	mean duration 21 months	team+staff+finan+case-M+Self-M+px_educ	T_HP_1.1+NT_HP_2.4 +NT_HP_13.2+NT_P_1.1+NT _P_12.2; NT_P_13.1	SF-12 mental; SF-12 physical; EQ5D	clinic	Commercial
Galbreath, 2004 (c)[86]	1999 to 2003 (48 months)	Disease management; Augmented	18 months	team+staff+case-M+Self-M+px_educ;	NT_P_4.1+NT_P_12.2+NT_P_ 12.5;	SF-36 mental; SF-36 physical; Quality of care; Assessed adherence	NR	Governmental/Public funding

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		disease management; Usual care		team+relay+staff+case-M+Self-M+px_educ	NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2+NT_P_12.5			
Gallagher, 1997[87]	NR	Social support-only group; Social support + education group; Education-only group; Control	36 months	px_educ; px_educ; px_educ	NT_P_6.1 +NT_P_12.2+NT_P_13.1; T_P_4.1 +NT_P_6.1 +NT_P_12.2; T_P_4.1		NA	Governmental/Public funding
Gaugler, 2008[88] (*CR10*, *23*, *24*)	NR	Counseling; Control	6 session over 4 months (counselling), weekly support group (8 months)	Self-M+px_educ	NT_C_1.2+NT_C_4.1+NT_C_12.2	Defined Sustainability	NA	Governmental/Public funding
Gellis, 2012[89]	NR	Telehealth; Usual care	12 months	team+relay+Self-M+px_educ; case-M+px_educ	NT_P_1.2+NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2+NT_P_12.5; NT_P_4.1+NT_P_12.2+NT_P_13.1		home	Governmental/Public funding
Goderis, 2010[27]	NR	Usual Quality Improvement Program (UQIP); Advanced Quality Improvement Program (AQIP)	18 months	AF+staff+finan+px_educ; hs finan+team+AF+staff+clin_reminder+px_educ+mot_interview	NT_HP_1.4+NT_HP_3.2+NT_HP_4.1+NT_HP_6.2+NT_P_4.1; NT_HP_4.1+NT_HP_6.2+NT_HP_7.1 +NT_HP_12.2+NT_P_4.1+NT_P_12.5		home, clinic	Governmental/Public funding
Graven, 2016[90]	NR	Telephone support; Control	12 months	case-M+Self-M+px_educ	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_3.2 +NT_P_4.1+NT_P_12.2		NA	Mixed
Haerter, 2016[91]	NR	Telephone-based coaching; Control	12 to up to 24 months	staff+case-M+Self-M+px_educ+mot_interview	NT_HP_4.1+T_P_1.1+NT_P_1.3+NT_P_4.1+NT_P_12.2	Defined Sustainability; Assessed adherence; Assessed fidelity	home	Commercial
Heisler, 2012[28]	Aug 2008 to March 2010 (20 months)	Provider training; Control	14 months	team+relay+staff+case-M+Self-M+px_educ+mot_interview; relay+case-M	NT_HP_3.2+NT_HP_4.1+NT_P_1.3+T_P_1.7+NT_P_2.4+NT_P_2.7+NT_P_4.2+NT_P_12.1 +NT_P_12.5	Assessed adherence	clinic	Governmental/Public funding
Hendriks, 2012[92]	NR	Nurse-led care; Control	NR	case-M+Self-M+px_educ	NT_HP_2.5+NT_HP_12.5+NT_P_4.1+NT_P_12.2+NT_P_12.5	Assessed adherence	clinic	Mixed
Hernandez, 2015[93] (*CR36*)	NR	Patient education; Usual care	12 months	team+relay+staff+case-M+Self-M+px_educ	NT_HP_12.2+T_P_1.1+NT_P_3.2 +NT_P_4.1	SGRQ	home, clinic	Unclear
Hetlevik, 2000[94]	NR	Decision support; Control	18 months	EPR+staff+clin_reminder+px_educ	NT_HP_4.1+NT_HP_7.1 +NT_HP_12.5	Quality of care; Assessed adherence	NR	Mixed

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Hogg, 2009[95]	Oct 2004 to Mar 2006 (17 months)	Team care; Usual care	12 to 18 months (mean of 14.9 months)	team+case-M	T_P_1.1+NT_P_3.2 +NT_P_12.2	SF-36 mental; SF-36 physical; Assessed adherence	home, clinic	Governmental/Public funding
Holbrook, 2011[96]	NR	Compete III; Control	12 months	relay+px_reminder+px_educ	NT_HP_7.1 +NT_HP_12.1+NT_HP_12.5+ NT_P_2.4+NT_P_4.1+NT_P_7 .1+NT_P_12.5		home, clinic	Governmental/Public funding
Holm, 2002[97]	Apr 1997 to Mar 2000 (35 months)	Shared care program; Control	24 months	AF+staff+Self-M+px_educ	NT_HP_4.1+NT_HP_6.2+NT_ HP_12.2+NT_P_4.1	Assessed adherence	clinic	Governmental/Public funding
Holt, 2010[98]	Jun 2006 to Sep 2008 (27 months)	Patient registry; Control	24 months	EPR+clin_reminder	T_HP_7.1	Assessed fidelity	NA	Governmental/Public funding
Hughes, 2000[99]	Oct 1994 to Sep 1998 (47 months)	Home based care; Control	12 months	team+case-M	T_HP_12.2	Assessed fidelity	home	Governmental/Public funding
Hunger, 2015[100]	NR	Nurse-led care; Control	12 months	case-M+px_educ	NT_P_1.2+NT_P_4.1+NT_P_1 2.2		home	Governmental/Public funding
Irewall, 2015[101]	NR	Counselling and assessment; Control	NR	relay+case-M+px_educ	NT_P_4.1+NT_P_12.2	Defined Sustainability	home	Governmental/Public funding
Jaarsma, 2008[102] (*CR18*)	NR	Intensive support; Basic support; Control	18 months	team+case-M+Self-M+px_educ; team+case-M+Self-M+px_educ	NT_HP_4.1+NT_P_2.3+T_P_1 2.2+NT_P_13.1; NT_HP_4.1+T_P_12.2+NT_P_ 13.1		home, clinic	Mixed
Joling, 2012[103] (*CR19*)	NR	Counseling; Usual care	12 months	Self-M+px_educ	NT_C_1.2+NT_C_4.1+NT_C_ 11.2+NT_C_12.2	Assessed adherence; Assessed fidelity	NA	Governmental/Public funding
Karhula, 2015a (d)[104]	Feb 2011 to Dec 2012 (22 months)	Health coach (heart disease); Usual care	12 months	team+EPR+relay+case-M+Self-M+px_educ+mot_interview; px_educ	T_P_1.1+NT_P_2.4+T_P_3.2+ NT_P_12.2+NT_P_12.5+NT_P _13.1; NT_P_13.1	SF-36 mental; SF-36 physical; Defined Sustainability; Assessed adherence; Assessed fidelity	home	Governmental/Public funding
Karhula, 2015b (d)[104]	Feb 2011 to Dec 2012 (22 months	Health coach (diabetes); Usual care	12 months	team+EPR+relay+case-M+Self-KTM+px_educ+mot_interview; px_educ	T_P_1.1+NT_P_2.4+T_P_3.2+ NT_P_12.2+NT_P_12.5+NT_P _13.1; NT_P_13.1	SF-36 mental; SF-36 physical; Defined Sustainability; Assessed adherence; Assessed fidelity	home	Governmental/Public funding
Kennedy, 2013[37]	2009 to 2012 (36 months)	Staff training; Usual care	12 months	staff+Self-M	T_HP_3.1+NT_HP_4.1	EQ5D; Assessed adherence; Assessed fidelity	NA	Research funding body
Kennedy, 2015[105] (*CR20*)	2009 to 2012 (36 months)	Quality improvement; Control	12 months	cQI+AF+staff; staff	NT_HP_1.2+NT_HP_1.3+NT_ HP_1.4+NT_HP_4.1+NT_HP_ 6.2+NT_HP_9.1	Assessed fidelity	NA	Governmental/Public funding

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Khdour, 2009[106]	Oct 2006 to May 2008 (19 months)	Patient education; Usual care	12 months	team+case-M+Self-M+px_educ+mot_interview	NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_6.1 +NT_P_7.1+NT_P_12.2	SGRQ; Assessed adherence	clinic	Voluntary body
Kiefe, 2001[31]	Jan 1994 to Jun 1998 (53 months)	Physician benchmarks; Control	12 months	cQI+AF; cQI+AF	NT_HP_1.2+NT_HP_1.3+T_HP_2.2+NT_HP_6.2; NT_HP_1.2+NT_HP_1.3+T_HP_2.2+NT_HP_6.2	Quality of care	NA	Governmental/Public funding
Kim, 2014[107]	2007 to 2011 (48 months)	Patient education; Control	education for 6 weeks; counseling for 12 months	relay+case-M+Self-M+px_educ; px_educ	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2+NT_P_12.5; NT_P_4.1	Defined Sustainability; Assessed adherence	home, clinic	Governmental/Public funding
Ko, 2017[108]	NR	Patient education; Usual care	12 months	case-M+Self-M+px_educ	NT_P_1.3+NT_P_4.1+NT_P_11.2+NT_P_12.2+NT_P_12.6	SGRQ; Defined Sustainability	home, clinic	NR
Kruis, 2014[109] (*CR3*)	NR	Clinician training; Usual care	12 months	AF+staff+Self-M+mot_interview; staff	NT_HP_1.3+NT_HP_4.1+NT_HP_6.2; NT_HP_4.1	SF-36 mental; SF-36 physical; EQ5D; SGRQ	NA	Mixed
Krum, 2013[110]	NR	Telemedicine support; Control	12 months	team+relay+staff+clin_reminder+case-M+Self-M+px_educ; staff	NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1+NT_P_1.3+NT_P_1.4+NT_P_2.4+NT_P_4.1+ NT_P_12.2+NT_P_12.5	Assessed adherence	NR	Governmental/Public funding
Kurz, 2010[111]	NR	Group education; Control	15 months	staff+Self-M+px_educ; px_educ	NT_C_1.2+NT_C_4.1+NT_C_12.2		NA	Governmental/Public funding
Kalter-Leibovici , 2017[112]	Aug 2007 to Jul 2012 (58 months)	Nurse management; Usual care	NR	team+relay+case-M+Self-M+px_educ	T_HP_7.1+NT_P_2.4+T_P_3.2 +NT_P_4.1	SF-36 mental; SF-36 physical; Assessed adherence; Assessed sustainability	home, clinic	Mixed
Leveille, 1998[113]	NR	Health management plan; Usual care	visits and phone calls for 12 months; education course for 7 weeks	team+relay+case-M+Self-M+px_educ	NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2+NT_P_12.6		home, community	Mixed
Leventhal, 2011[114]	NR	Patient education; Control	12 months	case-M+Self-M+px_educ; px_educ	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_2.4+NT_P_4.1+NT_P_12.2	Assessed adherence	home, clinic	Governmental/Public funding
Levine, 2011[115]	Jan 2002 to Dec 2008 (83 months)	Clinician education; Control	27 months	staff+clin_reminder; staff	NT_HP_4.1+NT_HP_7.1; NT_HP_9.1	Quality of care; Assessed adherence	NR	Governmental/Public funding
Li, 2012[116]	NR	Self-management education; Control	18 months	Self-M+px_educ; px_educ	NT_P_3.1+NT_P_4.1+NT_P_6.1; NT_P_4.1	Assessed adherence	community	NR

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Licskai, 2016[117]		Case management; Usual care	NR	case-M+px_educ	NT_P_13.1+NT_P_14.1		NR	NR
Lin, 2018 (e)[118]	Nov 2007 to Mar 2011 (40 months)	Pharmacist counselling; Usual care	16 months	team+case-M+px_educ	NT_HP_12.2+NT_P_4.1+NT_P_12.2	EQ5D	NR	Governmental/Public funding
Liu, 2008[119]	NR	Cell phone support; Usual care	NR	relay+Self-M+px_reminder+px_educ; px_educ	NT_P_1.1+NT_P_2.3+NT_P_4.1+NT_P_7.1+NT_P_12.5+NT_P_12.6; NT_P_1.1+NT_P_2.3+NT_P_4.1+NT_P_7.1+NT_P_12.6	SF-12 physical; Defined Sustainability; Assessed adherence	home, clinic	NR
Lopez Cabezas, 2006[120]	NR	Active information program; Usual care	NR	case-M+px_educ	NT_C_1.2+NT_C_4.1+NT_C_12.2+NT_P_1.2+NT_P_4.1+NT_P_12.2	EQ5D; Assessed adherence	home, hospital	Governmental/Public funding
Lowrie, 2014[121] (*CR22*)	Jan 2003 to Jan 2013 (120 months)	Provider training; Control	12 months	team+staff; staff	NT_HP_1.2+NT_HP_1.3+NT_HP_2.7+NT_HP_4.1+NT_HP_9.1+NT_HP_12.2	Quality of care	clinic	Governmental/Public funding
Machline-Carrion, 2019[122]	NR	Clinician Education + Case management; Control	12 months	AF+staff+case-M+px_educ	NT_HP_2.2+NT_HP_4.1+NT_HP_6.1+NT_HP_6.2+NT_HP_7.1 +T_P_3.2+NT_P_4.1+NT_P_12.2	Assessed adherence; Assessed fidelity	NR	Commercial
Mahoney, 2003[123]	NR	Telephone support; Control	12 months	Self-M+px_reminder+px_educ	NT_C_1.2+NT_C_4.1+NT_C_7.1+NT_C_12.2+NT_C_12.4+NT_C_12.5		NA	Governmental/Public funding
Maltais, 2008[124]	NR	Hospital-based intervention; Home-based intervention	12 months	Self-M+px_educ; Self-M+px_educ	NT_P_1.3+NT_P_2.1+NT_P_4.1; NT_P_1.3+NT_P_2.3+NT_P_4.1+NT_P_7.1	SGRQ (f); Assessed adherence	home, clinic	Research funding body
Markle-Reid, 2011[125]	Oct 2005 Sep 2008 (35 months)	Interprofessional rehabilitation; Usual care	12 months	team+staff+case-M+Self-M+px_educ+px_finan; case-M+px_educ+px_finan	NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2+T_P_12.5; NT_P_4.1+NT_P_12.2+T_P_12.5	SF-36 mental; SF-36 physical	home	Mixed
Markun, 2015[126]	NR	Care coaching; Usual care	12 months	EPR+staff+clin_reminder+case-M+Self-M+px_reminder+px_educ	NT_HP_4.1+NT_HP_7.1 +NT_HP_12.5+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_7.1+NT_P_12.2	Defined Sustainability	NA	Charitable trust
McCluskey, 2016[127]	Jul 2009 to Dec 2013 (53 months)	Provider training; Control	12 months	AF+staff; staff	NT_HP_1.1+NT_HP_1.2+NT_HP_4.1+NT_HP_6.2+T_HP_7.1; NT_HP_9.1		NA	Governmental/Public funding
McElrath [128], 2017	NR	Exercise education; Control	up to 36 months	relay+case-M+px_educ	NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+T_P_8.1+NT_P_12.2+NT_P_12.5+NT_P_12.6	Assessed adherence	home, community, clinic	Governmental/Public funding

Author, year (*companion report ref. number*)	**Study duration**	**KT Intervention name**	**Duration of KT Intervention**	**Intervention (EPOC) components**	**Intervention (BCT) components**	**Outcomes included in analysis***	**Setting**	**Funding**
McManus, 2014[129]	Mar 2011 to Jan 2013 (22 months)	Self-management; Usual care	NR	relay+Self-M+px_educ	NT_P_1.1+NT_P_2.4+NT_P_4.1+NT_P_12.5	EQ5D; Defined Sustainability; Assessed sustainability	NR	Governmental/Public funding
Meeuwsen, 2012[130]		Care coordination; Usual care	NR	team+case-M; staff	T_HP_9.1+T_HP_12.2; NT_HP_9.1		clinic	Mixed
Meisinger, 2013[131] (*CR15, 21, 31*)	Sep 2008 to Jun 2011 (33 months)	Case management; Control	12 months	case-M+px_educ	T_P_2.1+T_P_3.2+NT_P_13.1	Assessed adherence	home	Governmental/Public funding
Mejhert, 2004[132]	NR	Nurse management; Control	18 months	team+case-M+Self-M+px_educ	NT_P_2.4+NT_P_4.1+NT_P_12.2		clinic	Mixed
Mitchell, 2005[133]	Feb 1999 to Dec 2001 (34 months)	Audit + risk; Audit only; Control	12 months	AF+staff; AF+staff	NT_HP_4.1+NT_HP_6.2; NT_HP_4.1+NT_HP_6.2	Quality of care	NR	Governmental/Public funding
Moher, 2001[134]	Jun 1997 ro Oct 1999 (28 months)	Nurse recall group; GP recall group; Audit group	18 months	team+EPR+relay+AF+staff; EPR+relay+AF; AF	NT_HP_1.3+NT_HP_2.7+NT_HP_3.2+NT_HP_4.1+NT_HP_12.2+NT_HP_12.5; NT_HP_1.3+NT_HP_2.7+NT_HP_3.2+NT_HP_12.5; NT_HP_2.7+NT_HP_6.2	Defined Sustainability; Assessed adherence	clinic	Governmental/Public funding
Morganroth, 2016[135]	Jun 2011 to Jun 2012 (12 months)	Care Manager program; Control	12 months	EPR+AF+staff+clin_reminder	NT_HP_4.1+NT_HP_6.2+NT_HP_7.1 +NT_HP_12.5	Quality of care; Assessed adherence	NA	Mixed
Moriyama, 2009[136]	NR	Self-management education; Usual care	12 months	relay+case-M+Self-M+px_educ+mot_interview; px_educ	NT_P_1.1+NT_P_1.2+NT_P_1.4+NT_P_2.2+NT_P_2.3+NT_P_4.1+NT_P_12.2		NA	Governmental/Public funding
Moy, 2016[38] (*CR25, 26*)	NR	Web education; Control	12 months	Self-M+px_reminder+px_educ; px_reminder	NT_P_1.1+NT_P_2.2+NT_P_2.3+NT_P_4.1+NT_P_7.1+NT_P_12.2+NT_P_12.5; NT_P_2.3+NT_P_12.5	Assessed adherence	NR	Governmental/Public funding
Murphy, 2009[137] (*CR27*)	NR	Tailored care; Usual care	18 months	staff+Self-M	NT_HP_1.4+NT_HP_4.1+NT_HP_6.1+NT_HP_12.2+NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2	SF-12 mental; SF-12 physical	clinic	Mixed
Nguyen, 2013[138]	NR	Internet-based dyspnea self-management program (eDSMP); Face-to-face dyspnea self-management program (fDSMP);	12 months	team+case-M+Self-M+px_reminder+px_educ; team+case-M+Self-M+px_educ+mot_interview; px_educ	T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+NT_P_12.5+NT_P_13.1; T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+NT_P_13.1; NT_P_3.2 +NT_P_13.1	SF-36 mental; SF-36 physical; Assessed adherence; Assessed sustainability	home	Governmental/Public funding

Author, year (*companion report ref. number*)	Study duration	KT Intervention name	Duration of KT Intervention	Intervention (EPOC) components	Intervention (BCT) components	Outcomes included in analysis*	Setting	Funding
		General health education control (GHE)						
Ojeda, 2005[139]	NR	Formal education; Usual care	16 months	Self-M+px_educ	NT_P_1.1+NT_P_4.1+NT_P_12.2	MLHFQ; Defined Sustainability; Assessed sustainability	NR	NR
Olaiya, 2017[35] (*CR30*)	NR	Care coordination; Control	12 months	finan+case-M+Self-M+px_educ	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2	Assessed adherence	home, clinic	Governmental/Public funding
De Fine Olivarius, 2001[33] (*CR29*)	1989 to 1998 (108 months)	Structured care; Control	NR	AF+staff+clin_reminder+Self-M; staff	T_HP_1.3+T_HP_1.7+NT_HP_2.7+NT_HP_7.1 +NT_HP_13.2; NT_HP_9.1	Defined Sustainability	clinic	Mixed
Olson, 2009[140]	Sep 2005 to Aug 2007 (23 months)	Pharmacy-managed cardiovascular disease management; Control	24 months	case-M+Self-M+px_reminder+mot_interview; staff+px_reminder	NT_P_1.3+NT_P_2.7+NT_P_3.2 +NT_P_7.1; NT_P_2.7+NT_P_7.1		NR	Research funding body
Ortiz-Bautista, 2017[141]	NR	Nurse-led care; Usual care	NR	team+case-M+px_educ	NT_P_4.1+NT_P_12.2	MLHFQ	NR	Governmental/Public funding
Ostwald, 2014[142]	NR	Home visits; Informational mailing	12 months	case-M+px_educ+px_finan; px_educ+px_finan	NT_C_4.1+NT_C_12.2+NT_P_4.1+NT_P_12.2; NT_C_4.1+NT_P_4.1		NA	Mixed
Palacio, 2015[41]	NR	Motivational interviewing; Educational DVD	12 months	staff+px_educ+mot_interview; px_reminder+px_educ	T_P_1.1+NT_P_1.2+NT_P_1.4+NT_P_1.5+NT_P_4.1+NT_P_12.2; NT_P_4.1+NT_P_7.1	Defined Sustainability; Assessed adherence; Assessed fidelity	NA	Governmental/Public funding
Peters-Klimm, 2010[143]	NR	Clinician training case management; Usual care	12 months	team+EPR+relay+AF+case-M+Self-M+px_educ	NT_HP_2.7+NT_HP_12.2+NT_HP_12.5+NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_12.2	SF-36 mental; SF-36 physical; Assessed adherence	NR	Governmental/Public funding
Piette, 2015[144] (*CR33*)	NR	Mobile Health (mHealth)-CarePartner intervention; Standard Mobile-Health (M-health)	12 months	relay+Self-M+px_reminder+px_educ; relay+Self-M+px_educ	NT_HP_7.1 +NT_C_4.1+NT_C_7.1+NT_P_2.2+NT_P_2.3+NT_P_3.2 +NT_P_7.1+NT_P_12.2+NT_P_12.5; NT_HP_7.1 +NT_C_13.1+NT_P_2.3+NT_P_12.2+NT_P_12.5	MLHFQ; Assessed adherence	home	Governmental/Public funding
Pinnock, 2013[145]	NR	Telemonitoring; Usual care	12 months	relay+Self-M+px_educ; staff+Self-M+px_educ	NT_HP_7.1 +NT_P_2.4+NT_P_3.2 +NT_P_4.1; NT_P_4.1+NT_P_12.5	SGRQ; Assessed adherence	home, clinic	Governmental/Public funding

Author, year (*companion report ref. number*)	**Study duration**	**KT Intervention name**	**Duration of KT Intervention**	**Intervention (EPOC) components**	**Intervention (BCT) components**	**Outcomes included in analysis***	**Setting**	**Funding**
Pols, 2017[146]	Jan 2013 to Nov 2015 (34 months)	Provider and patient training; Control	12 months	staff+case-M+px_educ+mot_interview;	NT_HP_4.1+NT_P_1.2+NT_P_4.1+NT_P_12.2		NR	Governmental/Public funding
Rea, 2004[147]	NR	Team care; Usual care	12 months	team+case-M+Self-M+px_educ; staff	NT_HP_3.2+NT_HP_7.1 +NT_HP_9.1+NT_HP_10.1+T_P_1.1+NT_P_1.7+NT_P_5.1; NT_HP_9.1+NT_HP_10.1		clinic	Mixed
Reiber, 2004[148]	NR	Patient feedback; Control	24 months	relay+staff+clin_reminder	NT_HP_4.1+NT_HP_7.1	Assessed adherence	NA	Governmental/Public funding
Rovner, 2020[149]	NR	CHW education; OT tailored education	12 months	Self-M+px_educ; Self-M+px_reminder+px_educ	NT_P_4.1+NT_P_12.2; NT_P_1.1+NT_P_1.5+NT_P_4.1+NT_P_5.1+NT_P_7.1+NT_P_8.7+NT_P_12.1+T_P_12.2	Assessed fidelity	home	Voluntary body
Rubenstein, 2007[150]	NR	Case management; Usual care	36 months	team+case-M+px_reminder+px_educ	T_P_3.2+NT_P_7.1+NT_P_13.1	Defined Sustainability; Assessed adherence; Assessed sustainability	clinic	Governmental/Public funding
Saal, 2015[151]	Jun 2009 to Oct 2010 (16 months)	Stroke support service; Usual care	12 months	team+case-M+Self-M+px_educ; px_educ	T_P_3.2+NT_P_4.1; NT_P_13.1		NR	Mixed
Sackley, 2015[152]	May 2010 to Feb 2013 (33 months)	Training workshop; Usual care	NR	staff+case-M+Self-M+px_educ; staff	NT_HP_4.1	EQ5D	long term facility	Governmental/Public funding
Salinero-Fort,2011[153]	2003 to 2005 (24 months)	Precede Health Promotion Education (PHPE); Conventional Health Promotion Education (CHPE)	24 months	Self-M+px_educ+mot_interview; Self-M+px_educ	NT_P_1.2+NT_P_2.4+NT_P_4.1+NT_P_12.6; NT_P_4.1	Assessed adherence	clinic	Governmental/Public funding
Salisbury, 2018[154]	NR	3D Review; Usual care	NR	team+EPR+AF+staff+clin_reminder+finan+case-M+Self-M+px_reminder	NT_HP_4.1+NT_HP_6.2+NT_HP_7.1 +NT_HP_10.2+NT_HP_12.1+NT_HP_12.2	Assessed adherence	NR	Governmental/Public funding
Samus, 2014[155]	NR	Care coordination; Usual care	18 months	team+EPR+staff+case-M+px_reminder+px_educ	NT_HP_4.1+NT_HP_12.2+NT_HP_12.5+NT_C_1.2+NT_C_4.1+NT_C_7.1+NT_C_12.2+NT_P_1.2+NT_P_4.1+NT_P_7.1+NT_P_12.2; T_HP_1.1+NT_HP_13.1	Assessed fidelity	home	Mixed
Sanchez-Nieto, 2016[156]	Feb 2012 to Jan 2014 (23 months)	Self-management; Control	12 months	Self-M+px_educ	NT_P_1.1+NT_P_4.1+NT_P_6.1 +NT_P_12.6		home, clinic	Commercial

Author, year (*companion report ref. number*)	Study duration	KT Intervention name	Duration of KT Intervention	Intervention (EPOC) components	Intervention (BCT) components	Outcomes included in analysis*	Setting	Funding
Sarkadi, 2004[157]	NR	Pharmacist education; Control	12 months	staff+case-M+Self-M	NT_P_1.2+NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_11.2+NT_P_12.2	Assessed adherence	NR	Mixed
Schafer, 2018[158]	Oct 2011 to Jul 2013 (21 months)	GP training; Usual care	NR	staff+Self-M+px_educ; staff	NT_HP_4.1	EQ5D	clinic	Governmental/Public funding
Schrader, 2005[159]	NR	Team management; Usual care	12 months	team+staff	NT_HP_4.1+NT_HP_12.2		NA	Governmental/Public funding
Schraeder, 2009[29]	NR	Case management; Control	36 months	team+EPR+staff+clin_reminder+case-M+Self-M+px_educ	NT_P_2.7+NT_P_4.1+NT_P_12.2	SF-36 physical; Defined Sustainability; Assessed adherence	clinic	NR
Shea, 2006[30] (*CR17, 34, 35*)	Dec 2000 to Oct 2003 (34 months)	Telemedicine care; Control	28 months	EPR+relay+staff+case-M+px_educ+px_finan; staff	NT_HP_4.1+NT_P_2.4+NT_P_4.1+NT_P_12.2+NT_P_12.5; NT_HP_4.1+NT_HP_9.1		NA	Governmental/Public funding
Smith, 1999[160]	NR	Nurse management; Usual care	12 months	case-M+Self-M+px_educ; px_educ	NT_P_4.1+NT_P_6.1 +T_P_11.1 +NT_P_11.2+NT_P_12.2+NT_P_12.6; NT_P_4.1		home, hospital, clinic	NR
Solomon, 2012[161]	NR	Motivational interviewing; Informational mailings	NR	staff+px_educ+mot_interview; px_educ	NT_P_3.2 +NT_P_5.1+NT_P_7.1; NT_P_5.1		NR	Governmental/Public funding
Sonnichsen, 2010[162] (*CR11, 12*)	NR	Provider and patient training; Control	12 months	staff+case-M+Self-M+px_educ	NT_P_1.1+T_P_4.1; NT_HP_4.1	Quality of care; Assessed adherence	NR	Mixed
Stewart, 2012[163] (*CR39*)	Jun 2008 to Mar 2011 (33 months)	Clinic-based intervention; Home-based intervention	NR	team+case-M	NT_P_12.2	EQ5D; MLHFQ	home, clinic	Governmental/Public funding
Stewart, 2015[164] (*CR39*)	NR	Safety intervention; Usual care	24 months	case-M+Self-M+px_educ	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2	SF-12 mental; SF-12 physical; EQ5D	home, clinic	Mixed
Subramanian, 2004[165]	NR	Guideline-based care; Usual care	12 months	staff+clin_reminder; staff+clin_reminder	NT_HP_4.1+NT_HP_7.1 +T_HP_9.1; NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1	SF-36 mental; SF-36 physical; Assessed adherence	NA	Governmental/Public funding
Suominen, 2015[166]	NR	Nutrition advice; Usual care	NR	case-M+px_educ; px_educ	NT_P_1.1+NT_P_2.2+NT_P_2.3+NT_P_4.1+NT_P_12.2		home, clinic	Governmental/Public funding
Tjia, 2015[32]	NR	Toolkit + audit + academic detailing; Toolkit + audit &	12 months	AF+staff; AF+staff; staff	NT_HP_2.7+NT_HP_4.1+NT_HP_6.2+NT_HP_9.1; NT_HP_2.7+NT_HP_6.2+NT_HP_9.1; NT_HP_9.1		NA	Governmental/Public funding

Author, year (*companion report ref. number*)	Study duration	KT Intervention name	Duration of KT Intervention	Intervention (EPOC) components	Intervention (BCT) components	Outcomes included in analysis*	Setting	Funding
		feedback; Toolkit						
Tomita, 2009[167]	NR	Computer support; Usual care	12 months	team+Self-M+px_reminder+px_educ	NT_P_1.1+NT_P_2.3+NT_P_2.7+NT_P_4.1+NT_P_12.5	Defined Sustainability; Assessed adherence	NA	Governmental/Public funding
Tremont, 2008[84]	NR	Telephone Tracking-Dementia (FITT-D) intervention; Control	12 months	Self-M+px_educ+mot_interview; px_educ	NT_C_1.2+NT_C_4.1+NT_C_11.2+NT_C_12.2	Assessed adherence	NA	Governmental/Public funding
Trento, 2010[168]	4 years (48 months)	Group care; Usual care	24 months	staff+Self-M+px_educ	NT_P_4.1	Defined Sustainability	clinic	NR
Trofimov, 2015[39]	NR	Patient education; Control	12 months	px_educ	NT_P_4.1		home, hospital	NR
Vaillant-Roussel, 2016[169]	NR	Patient education; Usual care	19 months	staff+case-M+Self-M+px_educ+mot_interview	NT_HP_4.1+NT_HP_6.1+NT_P_1.3+NT_P_4.1	SF-36 mental; SF-36 physical; MLHFQ; Assessed adherence	clinic	Mixed
van de Ven, 2013[170] (*CR37*)	Oct 2010 to Apr 2012 (18 months)	Provider education; Usual care	NR	staff	NT_HP_1.4+NT_HP_4.1+NT_HP_8.1	EQ5D	NA	Research funding body
van Der Aa, 2015[171]	Jul 2012 to Jul 2015 (36 months)	Outpatient rehabilitation; Usual care	12 months	case-M+Self-M+px_educ	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_11.2+NT_P_12.2	EQ5D; Assessed adherence; Assessed fidelity	home, clinic	Research funding body
Vickrey, 2006 [26]	NR	Care management; Usual care	12 months	hs EPR+staff+case-M+Self-M	NT_HP_4.1+NT_HP_12.5+T_C_1.1+NT_C_1.2+NT_C_1.4+T_C_3.2	Assessed adherence	home, community	Mixed
Vinereanu, 2017[172]	NR	Education and feedback; Control	12 months	EPR+AF+staff+px_educ	NT_HP_2.2+NT_HP_9.1+T_HP_13.2+NT_C_13.1+NT_P_13.1	Quality of care; Assessed adherence	NR	Commercial
Wagenaar, 2019[173]	NR	E-Vita platform; Usual care website; Usual care	12 months	EPR+relay+case-M+px_reminder+px_educ; Self-M+px_reminder	NT_HP_7.1 +NT_HP_12.5+NT_P_1.2+NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_7.1+NT_P_12.2+NT_P_12.5; NT_P_1.2+NT_P_4.1+NT_P_7.1+NT_P_12.5	MLHFQ	clinic	Charitable trust
Waldorff, 2012[174] (*CR32*)	NR	Daisy intervention; Usual care	12 months	Self-M+px_educ+mot_interview	T_C_3.3+NT_C_13.1+T_P_3.3 +NT_P_13.1	Assessed adherence	home, clinic	Governmental/Public funding
Walters, 2013[175]	May 2008 to Dec 2010 (31 months)	Health mentoring; Usual care	12 months	staff+case-M+Self-M+px_educ	NT_HP_4.1+NT_HP_12.2+NT_P_1.1+NT_P_1.2+NT_P_1.4+T_P_4.1 +NT_P_11.2+NT_P_12.2	SF-36 mental; SF-36 physical; SGRQ; Assessed adherence; Assessed fidelity	home, clinic	Mixed

Author, year (*companion report ref. number*)	Study duration	KT Intervention name	Duration of KT Intervention	Intervention (EPOC) components	Intervention (BCT) components	Outcomes included in analysis*	Setting	Funding
Wetering, 2010[176]	NR	Rehabilitation; Usual care	4 months with 20 months maintenance	team+Self-M+px_educ+mot_interview; px_educ	NT_P_3.1+NT_P_4.1+NT_P_5.1+NT_P_7.1+NT_P_12.2; NT_P_5.1+NT_P_11.1	SGRQ; Defined Sustainability; Assessed adherence	home, clinic	Mixed
Whittle, 2014[177]	NR	Self-monitoring (education seminar); Peer-led intervention	12 months	Self-M+px_educ; Self-M+px_educ	NT_P_4.1+NT_P_12.5; NT_P_13.1	Assessed fidelity	NA	Governmental/Public funding
Wilcock, 2013[178] (*CR16*)	36 months	Educational workshops; Control	24 months	staff; staff	NT_HP_4.1+NT_HP_12.1; NT_HP_4.1		NA	Governmental/Public funding
Wright, 2001[179]	NR	Care education; Control	12 months	case-M+Self-M+px_educ	NT_C_1.2+NT_C_1.3+NT_C_4.1+NT_C_11.2+NT_C_12.2		NA	Charitable trust
Xi, 2015[180]	Feb 2010 to Apr 2012 (26 months)	Respiratory training; Educational program	12 months	Self-M+px_educ; px_educ	NT_P_2.5+NT_P_4.1; NT_P_13.1	SGRQ; Defined Sustainability; Assessed sustainability	home, clinic	Governmental/Public funding
Xiao, 2016[181]	NR	Care coordination; Usual care	12 months	staff+case-M+Self-M; px_educ	NT_C_1.2+NT_C_1.3+NT_C_2.4+NT_C_2.7+NT_C_4.1+NT_C_12.2; NT_C_4.1+NT_C_12.2	SF-36 mental (g); SF-36 physical; Defined Sustainability, Assessed fidelity	NA	Research funding body
Zwar, 2016[182]	Feb 2011 to Aug 2013 (30 months)	Team-based management; Usual care	18 months	EPR+staff; staff	NT_HP_1.3+NT_HP_2.2+NT_HP_4.1+T_HP_12.1; NT_HP_2.2+NT_HP_4.1	SGRQ; Quality of care (h); Assessed adherence	clinic	Governmental/Public funding

Abbreviations: EQ5D, EuroQoL Quality of Life Scale (EQ-5D); EPOC, Effective Practice and Organisation of Care (EPOC) Taxonomy; MLHFQ , Minnesota Living with Heart Failure Questionnaire; NA, Not Applicable; NR, Not Reported**;** SF-12 mental, 12 item Short-Form Health Survey (SF-12) – mental component; SF-12 physical, 12 item Short-Form Health Survey (SF-12) – physical component; SF-36 mental, 36 item Short-Form Health Survey (SF-36) – mental component; SF-36 physical, 36 item Short-Form Health Survey (SF-36) – physical component; SGRQ, St George's Respiratory Questionnaire; NR, not reported; CR, companion report;

***: Sustainability** is defined as the extent to which a KT intervention continues after adoption was initiated; **fidelity** refers to the consistency and quality of targeted organizational members' use of the specific innovation; **adherence** refers to the extent to which individuals implementing the intervention confirm to the intervention protocol for at least one year.

Notes:

(a) Study Bucknall, 2012 was excluded from the analysis because data provided are unclear - the study, does not report the final values on the regular EQ-5D score (similar with the provided MD value).
(b) Study Dunagan, 2005 was excluded from the analysis because the data are reported on two MLHFQ sub-scales (physical and emotional) without the total score. All remaining studies report a total score.
(c) Study Galbreath, 2004, the outcomes were not reported for one arm, so the study was treated in MA as two-arm study; however, the study has 3 arms.
(d) Study Karhula, 2015 a & b is one study with two different populations (two chronic diseases), so it is presented separately.

(e) Study Lin, 2018 is an outlier in the EQ-5D outcome so it is excluded from sensitivity analysis.
(f) Study Maltais, 2008 was excluded from the analysis as it compared the same exact components in both arms [the study includes the interventions hospital-based and home-based, but these include the same exact components (patient education and promotion of self-management) in both arms.
(g) Study Xiao, 2016 is an outlier in the SF-36 item Short-Form Mental Health Survey so it is excluded from sensitivity analysis.
(h) Study Zwar, 2016 is an outlier in the Quality-of-Care outcome so it is excluded from sensitivity analysis.

Appendix 10: Individual Patient Characteristics

Author, Year	Country	Study Design	Sample Size	Overall Age (Years), Age Type (Variance)	Female (%)	Duration of follow up (Months)	Sites
Ansari, 2003[43]	USA	RCT	169	NR	NR	14	single site
Baker, 2003[44]	UK	Cluster RCT	3151	NR	NA	12	multi site
Batchelor, 2012[45]	Australia	RCT	156	NR	36.54	12	multi site
Beck, 1997[46]	USA	Cluster RCT	321	NR	66.49	12	multi site
Beck, 2017[47]	USA	RCT	195	66.4, mean (8.1 SD)	46.7	12	multi site
Bekelman, 2015[48]	USA	RCT	392	68, mean (NR)	NR	12	multi site
Benzo, 2016[49]	USA	RCT	215	NR	NR	12	multi site
Blue, 2001[50]	UK	RCT	165	NR	42.42	12	single site
Bohingamu, 2019[51]	Australia	RCT	171	NR	48	12	single site
Bohm, 2016[52]	Germany	RCT	1002	66.3, mean (10.4 SD)	20.30	24	multi site
Team CPMMPE, 2007[53]	UK	RCT	1614	NR	31.51	12	multi site
Bosanquet, 2017[54]	UK	RCT	485	72, mean (NR)	62.05	18	multi site
Bourbeau, 2003[55]	Canada	RCT	191	NR	NR	12	multi site
Boyne, 2012[56]	Netherlands	RCT	382	71, mean (11 SD)	41	12	multi site
Bruce, 2004[57]	USA	Cluster RCT	598	NR (60 to 94 range)	71.61	12	multi site
Bruce, 2015[58]	USA	Cluster RCT	327	76.5, mean (8 SD)	69.60	12	multi site
Bucknall, 2012[59]	UK	RCT	464	69.1, mean (9.3 SD)	NR	12	multi site
Burns, 1995[60]	USA	RCT	130	NR	NR	12	single site
Burns, 2003[61]	USA	RCT	334	NR	55.29	24	multi site
Callahan, 2006[62]	USA	RCT	380	NR	43.14	18	multi site
Campbell, 1998[63]	UK	RCT	1173	66.1, mean (NR)	NR	12	multi site
Chen, 2015[36]	China	Cluster RCT	360	NR	63.50	12	multi site
Chi, 2012[64]	China	RCT	171	NR	NR	12	NR
Ciaschini, 2010[65]	Canada	RCT	201	71.9, mean (7.2 SD)	93.54	12	multi site
Cleveringa, 2008[66]	Netherlands	Cluster RCT	3391	NR	NR	12	multi site
Coleman, 1999[67]	USA	Cluster RCT	264	NR	48.5	24	multi site
Coull, 2004[68]	UK (Scotland)	RCT	320	NR	39.48	12	single site
de la Porte, 2007[69]	Netherlands	RCT	240	71, mean (NR)	NR	12	multi site
de Lusignana, 2013[70]	UK	Cluster RCT	691626	75.04, mean (11.82 SD)	0.50	24	multi site
DeBusk, 2004[71]	USA	RCT	462	72, mean (11 SD)	48.92	12	multi site
Del Sindaco, 2007[72]	Italy	RCT	173	77, mean (6 SD)	48.00	24	multi site
DeVore, 2015[73]	USA	Cluster RCT	71829	NR	48.6	12	multi site

Author, Year	Country	Study Design	Sample Size	Overall Age (Years), Age Type (Variance)	Female (%)	Duration of follow up (Months)	Sites
Dopp, 2015[74]	Netherlands	Cluster RCT	285	NR	45.06	12	multi site
Dracup, 2014[42]	USA	RCT	614	66.1, mean (12.9 SD)	40.5	24	multi site
Dunagan, 2005[75]	USA	RCT	151	NR	56.29	12	multi site
Eccles, 2007[34]	UK (England)	Cluster RCT	3608	NR	NR	15	multi site
Eckert, 2010[76]	Australia	Cluster RCT	321	70, mean (10 SD)	NR	12	multi site
Ell, 2007[77]	USA	RCT	486	NR	72.3	12	multi site
Fan, 2012[78]	USA	RCT	426	NR	3.05	12	multi site
Federman, 2019[79]	USA	RCT	391	67.8, mean (7.4 SD)	85	12	multi site
Fihn, 2004[80]	USA	Cluster RCT	23308	65, mean (10 SD)	NR	24	multi site
Fihn, 2011[81]	USA	Cluster RCT	986	68, mean (NR)	NR	20	multi site
Forster, 1996[82]	UK	RCT	240	NR	47	12	single site
Forster, 2015[83]	UK	Cluster RCT	1008	NR	NR	12	multi site
Fortinsky, 2009[183]	USA	RCT	226	NR	64.21	12	multi site
Freund, 2016[85]	Germany	Cluster RCT	2208	NR	52.00	24	multi site
Galbreath, 2004[86]	USA	RCT	1069	70.9, mean (10.3 SD)	29	18	single site
Gallagher, 1997[87]	USA	RCT	363	69, mean (NR)	62.87	36	multi site
Gaugler, 2008[88]	USA	RCT	812	NR	NR	190.8	single site
Gellis, 2012[89]	USA	RCT	115	79, mean (NR)	65.68	12	single site
Goderis, 2010[27]	Belgium	Cluster RCT	2637	NR	51.74	22	multi site
Graven, 2016[90]	Australia	RCT	110	69.9, mean (14.2 SD)	NR	12	multi site
Haerter, 2016[91]	Germany	RCT	10815	NR	60.39	24	multi site
Heisler, 2012[28]	USA	Cluster RCT	4622	NR	NR	14	multi site
Hendriks, 2012[92]	Netherlands	RCT	712	NR	41.29	12	single site
Hernandez, 2015[93]	Spain	RCT	155	NR	15.48	12	single site
Hetlevik, 2000[94]	Norway	Cluster RCT	1090	NR	54.03	18	multi site
Hogg, 2009[95]	Canada	RCT	241	NR	NR	14.9	multi site
Holbrook, 2011[96]	Canada	RCT	1102	69.1, mean (8.7 SD)	53.4	12	multi site
Holm, 2002[97]	Denmark	RCT	1567	70, median (17.0 to 91.0 range)	NR	24	single site
Holt, 2010[98]	UK	RCT	38147	NR	NR	24	multi site
Hughes, 2000[99]	USA	RCT	3849	70.4, mean (10.3 SD)	NR	12	multi site
Hunger, 2015[100]	Germany	RCT	340	NR, (65 to 92 range)	NR	12	single site
Irewall, 2015[101]	Sweden	RCT	537	70.8, mean (10.7 SD)	43	12	single site

Author, Year	Country	Study Design	Sample Size	Overall Age (Years), Age Type (Variance)	Female (%)	Duration of follow up (Months)	Sites
Jaarsma, 2008[102]	Netherlands	RCT	1023	71, mean (11 SD)	38.00	18	multi site
Joling, 2012[103]	Netherlands	RCT	384	NR	32.3	12	multi site
Karhula, 2015[104]	Finland	RCT	595	67.7, mean (8.97 SD)	40.80	12	single site
Kennedy, 2013[37]	UK	Cluster RCT	5863	NR	0.54	12	multi site
Kennedy, 2015[105]	Canada	Cluster RCT	5478	84.4, mean (10.9 SD)	70.82	12	multi site
Khdour, 2009[106]	UK	RCT	173	67, mean (NR)	56.05	12	single site
Kiefe, 2001[31]	USA	Cluster RCT	2028	NR	NR	17	multi site
Kim, 2014[107]	USA	RCT	440	70.9, mean (5.3 SD)	69.9	18	multi site
Ko, 2017[108]	Hong Kong	RCT	180	74.7, mean (8.2 SD)	NR	12	single site
Kruis, 2014[109]	Netherlands	Cluster RCT	2886	NR	NR	24	multi site
Krum, 2013[110]	Australia	Cluster RCT	548	NR	36.93	12	multi site
Kurz, 2010[111]	Austria; Switzerland; Germany	RCT	584	76, mean (NR)	63.7	15	multi site
Kalter-Leibovici, 2017[112]	Israel	RCT	1360	70.7, mean (11.3 SD)	NR	32.4	multi site
Leveille, 1998[113]	USA	RCT	201	NR	55.74	12	multi site
Leventhal, 2011[114]	Switzerland	RCT	42	77, mean (6.5 SD)	38.1	12	single site
Levine, 2011[115]	USA	Cluster RCT	16694	66, mean (10 SD)	NR	22	multi site
Li, 2012[116]	China	Cluster RCT	248	65.34, mean (12.25 SD)	60.89	18	multi site
Licskai, 2016[117]	Canada	RCT	181	67.7, mean (10.2 SD)	54.50	12	multi site
Lin, 2018[118]	Taiwan	RCT	178	NR	NR	12	multi site
Liu, 2008[119]	Taiwan	RCT	48	NR	NR	12	NR
Lopez Cabezas, 2006[120]	Spain	RCT	134	75, mean (NR)	55.97	12	multi site
Lowrie, 2014[121]	UK (Scotland)	Cluster RCT	4051	NR	NR	20.4	multi site
Machline-Carrion, 2019[122]	Brazil	Cluster RCT	1619	65.6, mean (10.5 SD)	36	12	multi site
Mahoney, 2003[123]	USA	RCT	200	NR	48.02	18	multi site
Maltais, 2008[124]	Canada	RCT	252	NR	44.50	12	multi site
Markle-Reid, 2011[125]	Canada	RCT	101	NR	NR	12	multi site
Markun, 2015[126]	Switzerland	RCT	169	76.7, mean (8 SD)	63.3	12	multi site
McCluskey, 2016[127]	Australia	Cluster RCT	22	NR	NR	12	multi site
McElrath, 2017[128]	USA	RCT	140	NR (50 to 85 range)	NR	36	multi site

Author, Year	Country	Study Design	Sample Size	Overall Age (Years), Age Type (Variance)	Female (%)	Duration of follow up (Months)	Sites
McManus, 2014[129]	UK	RCT	555	NR	NR	12	multi site
Meeuwsen, 2012[130]	Netherlands	RCT	350	78.1, mean (5.7 SD)	61.00	12	multi site
Meisinger, 2013[131]	Germany	RCT	340	75.4, mean (6 SD)	NR	21	single site
Mejhert, 2004[132]	Sweden	RCT	208	75.8, mean (7.1 SD)	NR	18	single site
Mitchell, 2005[133]	UK (Scotland)	RCT	1755	NR (65 to 79 range)	56.17	27	multi site
Moher, 2001[134]	UK	Cluster RCT	1906	55-75, range (NR)	13.8	18	multi site
Morganroth, 2016[135]	USA	Cluster RCT	242	69, mean (66, 72 95% (CI))	63	12	multi site
Moriyama, 2009[136]	Japan	RCT	65	NR	53.85	12	multi site
Moy, 2016[38]	USA	RCT	238	66.8, mean (8.8 SD)	6.3	12	multi site
Murphy, 2009[137]	Northern Ireland, Ireland	Cluster RCT	903	NR	NR	18	multi site
Nguyen, 2013[138]	USA	RCT	125	68.7, mean (9.7 SD)	46.00	12	multi site
Ojeda, 2005[139]	Spain	RCT	153	NR	NR	12	multi site
Olaiya, 2017[35]	Australia	Cluster RCT	563	70.1, median (60.9, 78.6 IQR (1,3))	35.49	12	multi site
De Fine Olivarius, 2001[33]	Denmark	Cluster RCT	1954	NR	NR	28	multi site
Olson, 2009[140]	USA	RCT	421	72, mean (NR)	26	24	multi site
Ortiz-Bautista, 2017[141]	Spain	RCT	127	75, mean (12 SD)	31	24	NR
Ostwald, 2014[142]	USA	RCT	318	NR	25.16	12	multi site
Palacio, 2015[41]	USA	RCT	452	69.5, mean (8.8 SD)	42	12	multi site
Peters-Klimm, 2010[143]	Germany	RCT	228	NR	NR	12	multi site
Piette, 2015[144]	USA	RCT	662	67.8, mean (10.2 SD)	NR	12	multi site
Pinnock, 2013[145]	UK	RCT	256	69.4, mean (8.6 SD)	55.00	12	multi site
Pols, 2017[146]	Netherlands	Cluster RCT	315	67.5, mean (10 SD)	45	12	multi site
Rea, 2004[147]	New Zealand	Cluster RCT	251	68, mean (44-84 range)	58.52	12	multi site
Reiber, 2004[148]	USA	Cluster RCT	5721	65.7, mean (NR)	NR	24	multi site
Rovner, 2020[149]	USA	RCT	101	68.4, mean (6.4 SD)	62	12	single site
Rubenstein, 2007[150]	USA	RCT	792	74, mean (NR)	3.00	36	single site
Saal, 2015[151]	Germany	RCT	265	NR	48.30	12	multi site
Sackley, 2015[152]	UK	Cluster RCT	1042	82.9, mean (NR)	NR	12	multi site
Salinero-Fort, 2011[153]	Spain	RCT	638	66.7, mean (14.5 SD)	51.6	24	multi site

Author, Year	Country	Study Design	Sample Size	Overall Age (Years), Age Type (Variance)	Female (%)	Duration of follow up (Months)	Sites
Salisbury, 2018[154]	UK	Cluster RCT	1546	71, mean (NR)	50.52	12	multi site
Samus, 2014[155]	USA	RCT	592	83.9, mean (5.9 SD)	63.7	18	multi site
Sanchez-nieto, 2016[156]	Spain	RCT	85	67.6, mean (6.9 SD)	9.35	12	multi site
Sarkadi, 2004[157]	Sweden	RCT	77	NR	NR	24	multi site
Schafer, 2018[158]	Germany	Cluster RCT	650	NR	54.64	12	multi site
Schrader, 2005[159]	Australia	RCT	1149	18 to 84, range (NR)	NR	12	multi site
Schraeder, 2009[29]	USA	RCT	1977	76, mean (NR)	53.07	36	multi site
Shea, 2006[30]	USA	Cluster RCT	1665	71, mean (NR)	62.8	12	multi site
Smith, 1999[160]	Australia	RCT	96	NR	39.58	12	multi site
Solomon, 2012[161]	USA	RCT	2097	78, mean (NR)	93.8	12	multi site
Sonnichsen, 2010[162]	Austria	Cluster RCT	1581	NR	47.82	12	multi site
Stewart, 2012[163]	Australia	RCT	280	71, mean (14 SD)	NR	18	multi site
Stewart, 2015[164]	Australia	RCT	335	72, mean (11 SD)	NR	24	multi site
Subramanian, 2004[165]	USA	RCT	811	68, mean (9 SD)	NR	12	multi site
Suominen, 2015[166]	Finland	RCT	156	77.4, mean (NR)	NR	12	multi site
Tjia, 2015[32]	USA	Cluster RCT	42	NR	NR	12	multi site
Tomita, 2009[167]	USA	RCT	40	76.2, mean (NR)	67.5	12	multi site
Tremont, 2008[84]	USA	RCT	120	NR	NR	12	multi site
Trento, 2010[168]	Italy	RCT	815	NR	49.33	48	multi site
Trofimov, 2015[39]	Russia	RCT	120	71, mean (NR)	NR	12	NR
Vaillant-Roussel, 2016[169]	France	Cluster RCT	325	74, mean (10.5 SD)	NR	19	multi site
van de Ven, 2013[170]	Netherlands	Cluster RCT	810	84.7, mean (6.3 SD)	75.10	12	multi site
Van Der Aa, 2015[171]	Netherlands, Belgium	RCT	265	50 to 98, range (NR)	70	24	multi site
Vickrey, 2006 [26]	USA	Cluster RCT	816	80.1, mean (NR)	54.91	22.5	multi site
Vinereanu, 2017[172]	Argentina; Brazil; China; India; Romania	Cluster RCT	2281	NR	47.04	12	multi site
Wagenaar, 2019[173]	The Netherlands ;	RCT	450	66.8, mean (11 SD)	NR	12	multi site
Waldorff, 2012[174]	Denmark	RCT	660	76.2, mean (NR)	54.01	12	multi site

Author, Year	Country	Study Design	Sample Size	Overall Age (Years), Age Type (Variance)	Female (%)	Duration of follow up (Months)	Sites
Walters, 2013[175]	Australia	Cluster RCT	182	68, mean (NR)	NR	12	multi site
Van Wetering, 2010[176]	Netherlands	RCT	199	NR	NR	24	multi site
Whittle, 2014[177]	USA	Cluster RCT	404	NR	NR	12	multi site
Wilcock, 2013[178]	UK	Cluster RCT	1072	NR	65.95	12	multi site
Wright, 2001[179]	USA	RCT	186	NR	NR	12	single site
Xi, 2015[180]	China	RCT	70	NR	25.00	12	single site
Xiao, 2016[181]	Australia	RCT	122	83, median (76.0 to 86.0 IQR)	60.7	12	multi site
Zwar, 2016[182]	Australia	Cluster RCT	364	66, mean (NR)	NR	12	multi site

Abbreviations: NR, Not Reported; RCT, Randomized Controlled Trial

Appendix 11: Sustainability of KT Interventions Summarized Results

Summarized by combination of components			**Assessed sustainability**		**Assessed adherence**		**Assessed fidelity**	
EPOC coding	**N**	**Percent (%)**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
AF	1	0.3	1	0	0	1	1	0
AF+staff	7	2.1	7	0	6	1	7	0
AF+staff+	1	0.3	1	0	1	0	1	0
AF+staff+Self-M+mot_interview	1	0.3	1	0	1	0	1	0
AF+staff+Self-M+px_educ	1	0.3	1	0	0	1	1	0
AF+staff+case-M+px_educ	1	0.3	1	0	0	1	0	1
AF+staff+clin_reminder+Self-M	1	0.3	1	0	1	0	1	0
AF+staff+finan+px_educ	1	0.3	1	0	1	0	1	0
EPR+AF+staff+clin_reminder	1	0.3	1	0	0	1	1	0
EPR+AF+staff+px_educ	1	0.3	1	0	0	1	1	0
EPR+clin_reminder	1	0.3	1	0	1	0	0	1
EPR+relay+AF	1	0.3	1	0	0	1	1	0
EPR+relay+AF+staff	1	0.3	1	0	0	1	0	1
EPR+relay+cQI+AF	1	0.3	1	0	0	1	1	0
EPR+relay+cQI+AF+staff	1	0.3	1	0	0	1	1	0
EPR+relay+case-M+px_reminder+px_educ	1	0.3	1	0	1	0	1	0
EPR+relay+staff+case-M+px_educ+px_finan	1	0.3	1	0	1	0	1	0
EPR+staff	1	0.3	1	0	0	1	1	0
EPR+staff+clin_reminder+case-M+Self-M+px_reminder+px_educ	1	0.3	1	0	1	0	1	0
EPR+staff+clin_reminder+px_educ	1	0.3	1	0	0	1	1	0
EPR+staff+clin_reminder+px_reminder	1	0.3	1	0	0	1	1	0
EPR+staff+mot_interview	1	0.3	1	0	0	1	1	0
Self-M	1	0.3	1	0	1	0	1	0
Self-M+px_educ	13	3.95	9	3	6	6	9	3
Self-M+px_educ+mot_interview	5	1.52	5	0	2	3	5	0
Self-M+px_educ+px_finan	1	0.3	1	0	1	0	1	0
Self-M+px_reminder	1	0.3	1	0	1	0	1	0
Self-M+px_reminder+px_educ	4	1.2	3	0	2	1	2	1
UC	92	28.1	84	5	66	23	86	3
cQI+AF	1	0.3	1	0	1	0	1	0

cQI+AF+	1	0.3	1	0	1	0	1	0
cQI+AF+staff	1	0.3	1	0	1	0	0	1
case-M+Self-M	1	0.3	0	1	1	0	1	0
case-M+Self-M+px_educ	10	3.04	8	2	7	3	9	1
case-M+Self-M+px_reminder+mot_interview	1	0.3	1	0	1	0	1	0
case-M+px_educ	6	1.82	6	0	4	2	6	0
case-M+px_educ+px_finan	2	0.61	2	0	2	0	2	0
finan+case-M+Self-M+px_educ	1	0.3	1	0	0	1	1	0
hs EPR+staff+case-M+Self-M	1	0.3	1	0	0	1	1	0
hs finan+team+AF+staff+clin_reminder+px_educ+mot_interview	1	0.3	1	0	1	0	1	0
hs finan+team+relay+staff+case-M	1	0.3	1	0	1	0	1	0
px_educ	24	7.29	21	3	20	4	23	1
px_educ+px_finan	1	0.3	1	0	1	0	1	0
px_reminder	1	0.3	1	0	0	1	1	0
px_reminder+px_educ	1	0.3	1	0	1	0	1	0
relay+Self-M+px_educ	3	0.91	2	1	1	2	3	0
relay+Self-M+px_reminder+px_educ	2	0.61	2	0	0	2	2	0
relay+Self-M+px_reminder+px_educ+px_finan	1	0.3	0	1	1	0	1	0
relay+cQI+staff	1	0.3	1	0	0	1	1	0
relay+case-M	1	0.3	1	0	0	1	1	0
relay+case-M+Self-M+px_educ	5	1.52	3	1	3	1	4	0
relay+case-M+Self-M+px_educ+mot_interview	1	0.3	1	0	1	0	1	0
relay+case-M+Self-M+px_reminder+px_educ+px_finan	1	0.3	0	1	1	0	1	0
relay+case-M+px_educ	2	0.61	2	0	1	1	2	0
relay+px_educ	2	0.61	2	0	1	1	2	0
relay+px_reminder+px_educ	1	0.3	1	0	1	0	1	0
relay+staff	1	0.3	1	0	1	0	1	0
relay+staff+case-M+Self-M+mot_interview	1	0.3	1	0	0	1	0	1
relay+staff+clin_reminder	1	0.3	1	0	0	1	1	0
staff	26	7.9	26	0	19	7	25	1
staff+Self-M	2	0.6	2	0	1	1	1	1
staff+Self-M+px_educ	5	1.5	5	0	4	1	5	0
staff+case-M+Self-M	2	0.6	2	0	1	1	1	1
staff+case-M+Self-M+px_educ	5	1.5	5	0	2	3	4	1
staff+case-M+Self-M+px_educ+mot_interview	2	0.6	2	0	0	2	1	1
staff+case-M+px_educ+mot_interview	1	0.3	1	0	1	0	1	0
staff+clin_reminder	4	1.2	4	0	0	4	3	1
staff+clin_reminder+px_reminder	1	0.3	1	0	0	1	1	0

staff+px_educ	2	0.6	2	0	2	0	2	0
staff+px_educ+mot_interview	2	0.6	2	0	1	1	1	1
staff+px_reminder	1	0.3	1	0	1	0	1	0
team+EPR+AF+staff+clin_reminder+finan+case-M+Self-M+px_reminder	1	0.3	1	0	0	1	1	0
team+EPR+case-M+Self-M+px_educ	1	0.3	1	0	1	0	1	0
team+EPR+relay+AF+case-M+Self-M+px_educ	1	0.3	1	0	0	1	1	0
team+EPR+relay+AF+staff	1	0.3	1	0	0	1	1	0
team+EPR+relay+case-M+Self-M	1	0.3	1	0	0	1	0	1
team+EPR+relay+case-M+Self-M+px_educ+mot_interview	1	0.3	1	0	0	1	0	1
team+EPR+staff+case-M+px_reminder+px_educ	1	0.3	1	0	1	0	0	1
team+EPR+staff+clin_reminder+case-M+Self-M+px_educ	1	0.3	1	0	0	1	1	0
team+Self-M+px_educ+mot_interview	1	0.3	1	0	0	1	1	0
team+Self-M+px_reminder+px_educ	1	0.3	1	0	0	1	1	0
team+case-M	5	1.5	5	0	4	1	4	1
team+case-M+Self-M+px_educ	7	2.1	6	1	6	1	7	0
team+case-M+Self-M+px_educ+mot_interview	2	0.6	1	1	0	2	2	0
team+case-M+Self-M+px_reminder+px_educ	1	0.3	0	1	0	1	1	0
team+case-M+px_educ	3	0.9	3	0	3	0	3	0
team+case-M+px_finan	1	0.3	1	0	1	0	1	0
team+case-M+px_reminder+px_educ	2	0.6	1	1	1	1	2	0
team+px_educ	1	0.3	1	0	1	0	1	0
team+relay+Self-M+px_educ	1	0.3	1	0	1	0	1	0
team+relay+case-M	1	0.3	0	1	1	0	1	0
team+relay+case-M+Self-M+px_educ	2	0.6	1	1	1	1	2	0
team+relay+case-M+px_educ	1	0.3	1	0	0	1	1	0
team+relay+staff+case-M+Self-M+px_educ	2	0.6	2	0	1	1	2	0
team+relay+staff+case-M+Self-M+px_educ+mot_interview	1	0.3	1	0	0	1	1	0
team+relay+staff+case-M+Self-M+px_reminder+px_educ	1	0.3	1	0	1	0	1	0
team+relay+staff+clin_reminder+case-M+Self-M+px_educ	1	0.3	1	0	0	1	1	0
team+staff	2	0.6	2	0	2	0	2	0
team+staff+case-M	1	0.3	1	0	0	1	1	0
team+staff+case-M+Self-M	1	0.3	1	0	1	0	1	0
team+staff+case-M+Self-M+px_educ	3	0.9	3	0	0	3	2	1
team+staff+case-M+Self-M+px_educ+px_finan	1	0.3	1	0	1	0	1	0
team+staff+case-M+px_reminder+px_educ	1	0.3	1	0	0	1	1	0
team+staff+finan+case-M+Self-M+px_educ	1	0.3	1	0	1	0	1	0
Total	**327**	**100**	**297**	**25**	**207**	**115**	**295**	**27**

Summarized by combination of components			Assessed sustainability		Assessed adherence		Assessed fidelity	
BCT coding	**N**	**Percent (%)**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
NT_C_1.2+NT_C_1.3 +NT_C_1.4+NT_C_4.1	1	0.3	1	0	1	0	1	0
NT_C_1.2+NT_C_1.3 +NT_C_1.4+NT_C_4.1+NT_C_12.2	1	0.3	0	1	1	0	1	0
NT_C_1.2+NT_C_1.3 +NT_C_2.4+NT_C_2.7+NT_C_4.1+NT_C_12.2	1	0.3	1	0	1	0	0	1
NT_C_1.2+NT_C_1.3 +NT_C_4.1+NT_C_11.2+NT_C_12.2	1	0.3	1	0	1	0	1	0
NT_C_1.2+NT_C_1.3 +NT_C_4.1+NT_C_13.1	1	0.3	1	0	1	0	1	0
NT_C_1.2+NT_C_4.1+NT_C_11.2+NT_C_12.2	2	0.61	2	0	0	2	1	1
NT_C_1.2+NT_C_4.1+NT_C_12.2	2	0.61	2	0	2	0	2	0
NT_C_1.2+NT_C_4.1+NT_C_12.2+NT_P_1.2+NT_P_4.1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_C_1.2+NT_C_4.1+NT_C_7.1+NT_C_12.2+NT_C_12.4+NT_C_12.5	1	0.3	1	0	1	0	1	0
NT_C_3.1	1	0.3	1	0	1	0	1	0
NT_C_4.1+NT_C_12.2	1	0.3	1	0	1	0	1	0
NT_C_4.1+NT_C_12.2+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_C_4.1+NT_P_4.1	1	0.3	1	0	1	0	1	0
NT_HP_1.1+NT_HP_1.2+NT_HP_4.1+NT_HP_12.2+NT_P_1.2+NT_P_1.3+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_HP_1.1+NT_HP_1.2+NT_HP_4.1+NT_HP_6.2+T_HP_7.1	1	0.3	1	0	1	0	1	0
NT_HP_1.1+NT_HP_1.3+NT_P_1.1+NT_P_1.3+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_HP_1.1+NT_HP_2.3 +NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1+NT_HP_12.1+NT_HP_12.2+NT_HP_12.5+NT_P_7.1	1	0.3	1	0	0	1	1	0
NT_HP_1.2+NT_HP_1.3+NT_HP_1.4+NT_HP_4.1+ NT_HP_6.2+NT_HP_9.1	1	0.3	1	0	1	0	0	1
NT_HP_1.2+NT_HP_1.3+NT_HP_2.7+NT_HP_4.1+ NT_HP_9.1+NT_HP_12.2	1	0.3	1	0	1	0	1	0
NT_HP_1.2+NT_HP_1.3+T_HP_2.2+NT_HP_6.2	2	0.61	2	0	2	0	2	0
NT_HP_1.2+NT_HP_4.1+NT_HP_6.1+NT_HP_8.1+ NT_HP_12.5	1	0.3	1	0	0	1	1	0
NT_HP_1.2+NT_HP_4.1+NT_HP_9.1+NT_HP_12.2+ NT_HP_13.2+NT_P_2.5+NT_P_4.1+NT_P_7.1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_HP_1.2+NT_HP_4.1+T_P_4.1 +NT_P_7.1+T_P_11.1	1	0.3	1	0	1	0	1	0
NT_HP_1.3+NT_HP_2.2+NT_HP_4.1+T_HP_12.1	1	0.3	1	0	0	1	1	0
NT_HP_1.3+NT_HP_2.7+NT_HP_3.2+NT_HP_12.5	1	0.3	1	0	0	1	1	0
NT_HP_1.3+NT_HP_2.7+NT_HP_3.2+NT_HP_4.1+ NT_HP_12.2+NT_HP_12.5	1	0.3	1	0	0	1	1	0

NT_HP_1.3+NT_HP_4.1+NT_HP_6.2	1	0.3	1	0	1	0	1	0
NT_HP_1.3+NT_HP_9.1	2	0.61	2	0	0	2	2	0
NT_HP_1.3+T_HP_2.2+NT_HP_6.2	1	0.3	1	0	0	1	1	0
NT_HP_1.4+NT_HP_3.2+NT_HP_4.1+NT_HP_6.2+ NT_P_4.1	1	0.3	1	0	1	0	1	0
NT_HP_1.4+NT_HP_4.1+NT_HP_6.1+NT_HP_12.2+ NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_HP_1.4+NT_HP_4.1+NT_HP_8.1	1	0.3	1	0	1	0	1	0
NT_HP_12.2+NT_HP_13.2	1	0.3	1	0	0	1	1	0
NT_HP_12.2+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_HP_12.2+T_P_1.1+NT_P_3.2 +NT_P_4.1	1	0.3	1	0	1	0	1	0
NT_HP_13.2	1	0.3	1	0	1	0	1	0
NT_HP_2.1+NT_HP_12.2+T_C_2.2+NT_C_3.1+NT_ C_13.3	1	0.3	1	0	1	0	1	0
NT_HP_2.2+NT_HP_4.1	1	0.3	1	0	0	1	1	0
NT_HP_2.2+NT_HP_4.1+NT_HP_6.1+NT_HP_6.2+ NT_HP_7.1 +T_P_3.2+NT_P_4.1+NT_P_12.2	1	0.3	1	0	0	1	0	1
NT_HP_2.2+NT_HP_9.1+T_HP_13.2+NT_C_13.1+N T_P_13.1	1	0.3	1	0	0	1	1	0
NT_HP_2.4 +NT_HP_2.7+NT_HP_4.1+NT_HP_12.5+NT_P_1.2+ NT_P_1.3+NT_P_4.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	0	1	0	1
NT_HP_2.5+NT_HP_12.5+NT_P_4.1+NT_P_12.2+N T_P_12.5	1	0.3	1	0	0	1	1	0
NT_HP_2.5+NT_HP_7.1	1	0.3	0	1	1	0	1	0
NT_HP_2.7+NT_HP_12.2+NT_HP_12.5+NT_P_1.3+ NT_P_2.4+NT_P_4.1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_HP_2.7+NT_HP_4.1+NT_HP_6.2+NT_HP_9.1	1	0.3	1	0	1	0	1	0
NT_HP_2.7+NT_HP_6.2	1	0.3	1	0	0	1	1	0
NT_HP_2.7+NT_HP_6.2+NT_HP_9.1	1	0.3	1	0	1	0	1	0
NT_HP_3.2+NT_HP_4.1+NT_HP_12.1+NT_P_1.3+N T_P_4.1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_HP_3.2+NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_HP_3.2+NT_HP_4.1+NT_HP_9.1+NT_HP_12.2	1	0.3	1	0	0	1	1	0
NT_HP_3.2+NT_HP_4.1+NT_P_1.3+T_P_1.7+NT_P _2.4+NT_P_2.7+NT_P_4.2+NT_P_12.1+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_HP_3.2+NT_HP_7.1 +NT_HP_9.1+NT_HP_10.1+T_P_1.1+NT_P_1.7+NT _P_5.1	1	0.3	1	0	1	0	1	0
NT_HP_3.2+NT_P_2.5+NT_P_3.2 +NT_P_13.1	1	0.3	1	0	1	0	1	0
NT_HP_4.1	5	1.52	5	0	4	1	5	0
NT_HP_4.1+NT_HP_12.1	2	0.61	2	0	1	1	2	0
NT_HP_4.1+NT_HP_12.2	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_HP_12.2+NT_HP_12.5+NT_C_1.2+ NT_C_4.1+NT_C_7.1+NT_C_12.2+NT_P_1.2+NT_P _4.1+NT_P_7.1+NT_P_12.2	1	0.3	1	0	1	0	0	1
NT_HP_4.1+NT_HP_12.2+NT_P_1.1+NT_P_1.2+NT _P_1.4+T_P_4.1 +NT_P_11.2+NT_P_12.2	1	0.3	1	0	0	1	0	1
NT_HP_4.1+NT_HP_12.2+NT_P_1.1+NT_P_1.4+NT _P_4.1+NT_P_12.2+NT_P_12.6	1	0.3	1	0	1	0	1	0

NT_HP_4.1+NT_HP_12.5+T_C_1.1+NT_C_1.2+NT_C_1.4+T_C_3.2	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_6.1	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_6.1+NT_P_1.3+NT_P_4.1	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_6.2	2	0.61	2	0	2	0	2	0
NT_HP_4.1+NT_HP_6.2+NT_HP_12.2	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_HP_6.2+NT_HP_12.2+NT_P_4.1	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_6.2+NT_HP_7.1	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_HP_6.2+NT_HP_7.1 +NT_HP_10.2+NT_HP_12.1+NT_HP_12.2	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_6.2+NT_HP_7.1 +NT_HP_12.2+NT_P_4.1+NT_P_12.5	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_HP_6.2+NT_HP_7.1 +NT_HP_12.5	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_7.1	4	1.22	4	0	1	3	3	1
NT_HP_4.1+NT_HP_7.1 +NT_HP_12.1	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_7.1 +NT_HP_12.5	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_7.1 +NT_HP_12.5+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_7.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_7.1 +NT_HP_9.1+NT_P_1.3+NT_P_1.4+NT_P_2.4+NT_P_4.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_7.1 +T_HP_9.1	1	0.3	1	0	0	1	1	0
NT_HP_4.1+NT_HP_9.1	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_HP_9.1+NT_HP_13.2	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_P_1.2+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_P_1.3+NT_P_4.1	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_P_2.3+T_P_12.2+NT_P_13.1	1	0.3	1	0	1	0	1	0
NT_HP_4.1+NT_P_2.4+NT_P_4.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	1	0	1	0
NT_HP_4.1+T_P_1.1+NT_P_1.3+NT_P_4.1+NT_P_12.2	1	0.3	1	0	0	1	0	1
NT_HP_4.1+T_P_12.2+NT_P_13.1	1	0.3	1	0	1	0	1	0
NT_HP_4.1+T_P_3.2	1	0.3	1	0	1	0	1	0
NT_HP_7.1 +NT_C_13.1+NT_P_2.3+NT_P_12.2+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_HP_7.1 +NT_C_4.1+NT_C_7.1+NT_P_2.2+NT_P_2.3+NT_P_3.2 +NT_P_7.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_HP_7.1 +NT_HP_12.1+NT_HP_12.5+NT_P_2.4+NT_P_4.1+NT_P_7.1+NT_P_12.5	1	0.3	1	0	1	0	1	0
NT_HP_7.1 +NT_HP_12.5+NT_P_1.2+NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_7.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	1	0	1	0
NT_HP_7.1 +NT_P_2.4+NT_P_3.2 +NT_P_4.1	1	0.3	1	0	0	1	1	0
NT_HP_8.1+NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2+T_P_12.5	1	0.3	1	0	0	1	1	0

NT_HP_9.1	6	1.82	6	0	4	2	6	0
NT_HP_9.1+NT_HP_10.1	1	0.3	1	0	1	0	1	0
NT_HS_1.1+NT_HS_1.3+NT_HS_2.1+NT_HS_2.2+ NT_HS_2.7+NT_HS_4.1+NT_HS_12.5	1	0.3	1	0	0	1	1	0
NT_HS_1.1+NT_HS_2.1	1	0.3	1	0	0	1	1	0
NT_P_1.1+NT_P_1.2+NT_P_1.4+NT_P_2.2+NT_P_2 .3+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2+T_P_1 2.5	1	0.3	1	0	1	0	1	0
NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_6.1 +NT_P_12.2+NT_P_12.5+NT_P_12.6	1	0.3	1	0	0	1	0	1
NT_P_1.1+NT_P_1.5+NT_P_4.1+NT_P_5.1+NT_P_7 .1+NT_P_8.7+NT_P_12.1+T_P_12.2	1	0.3	1	0	1	0	0	1
NT_P_1.1+NT_P_2.2+NT_P_2.3+NT_P_4.1+NT_P_7 .1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	1	0	1	0
NT_P_1.1+NT_P_2.2+NT_P_2.3+NT_P_4.1+NT_P_1 2.2	1	0.3	1	0	0	1	1	0
NT_P_1.1+NT_P_2.3+NT_P_2.7+NT_P_4.1+NT_P_1 2.5	1	0.3	1	0	0	1	1	0
NT_P_1.1+NT_P_2.3+NT_P_4.1+NT_P_7.1+NT_P_1 2.5+NT_P_12.6	1	0.3	1	0	0	1	1	0
NT_P_1.1+NT_P_2.3+NT_P_4.1+NT_P_7.1+NT_P_1 2.6	1	0.3	1	0	1	0	1	0
NT_P_1.1+NT_P_2.4+NT_P_2.7+NT_P_3.1+T_P_4.1	1	0.3	0	1	1	0	1	0
NT_P_1.1+NT_P_2.4+NT_P_4.1+NT_P_12.5	1	0.3	0	1	1	0	1	0
NT_P_1.1+NT_P_2.5+NT_P_4.1+NT_P_12.2	1	0.3	0	1	0	1	1	0
NT_P_1.1+NT_P_4.1+NT_P_12.2	1	0.3	0	1	1	0	1	0
NT_P_1.1+NT_P_4.1+NT_P_6.1 +NT_P_12.6	1	0.3	1	0	1	0	1	0
NT_P_1.1+T_P_1.4+NT_P_2.3+NT_P_2.7+NT_P_12. 1+T_P_12.6	1	0.3	0	1	0	1	1	0
NT_P_1.1+T_P_4.1	1	0.3	1	0	0	1	1	0
NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_2.4+NT_P_2 .7+NT_P_4.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_2.4+NT_P_4 .1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_3.2 +NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_1 1.2+NT_P_12.2	1	0.3	1	0	0	1	0	1
NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_1 2.2	2	0.61	2	0	1	1	2	0
NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_7 .1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_1.2+NT_P_1.3+NT_P_1.7+NT_P_4.1+NT_P_1 2.2	1	0.3	1	0	1	0	1	0
NT_P_1.2+NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4 .1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	1	0	1	0
NT_P_1.2+NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_1 1.2+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_P_1.2+NT_P_2.4+NT_P_4.1+NT_P_12.6	1	0.3	1	0	0	1	1	0
NT_P_1.2+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_1.2+NT_P_4.1+NT_P_7.1+NT_P_12.5	1	0.3	1	0	1	0	1	0
NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2+NT_P_ 12.6	1	0.3	1	0	1	0	1	0

NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_6.1 +NT_P_7.1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_P_1.3+NT_P_2.1+NT_P_4.1	1	0.3	1	0	0	1	1	0
NT_P_1.3+NT_P_2.3+NT_P_4.1+NT_P_7.1	1	0.3	1	0	0	1	1	0
NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+T_P_8.1 +NT_P_12.2+NT_P_12.5+NT_P_12.6	1	0.3	1	0	0	1	1	0
NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_10.1 +NT_P_12.2+NT_P_12.5	1	0.3	0	1	1	0	1	0
NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_9.1+NT_P_10.1 +NT_P_12.2+NT_P_12.5	1	0.3	0	1	1	0	1	0
NT_P_1.3+NT_P_2.7+NT_P_3.2 +NT_P_7.1	1	0.3	1	0	1	0	1	0
NT_P_1.3+NT_P_4.1+NT_P_11.2+NT_P_12.2+NT_P_12.6	1	0.3	1	0	1	0	1	0
NT_P_1.4+T_P_2.3	1	0.3	0	1	1	0	1	0
NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_13.1	7	2.13	7	0	6	1	5	2
NT_P_13.1+NT_P_14.1	1	0.3	1	0	1	0	1	0
NT_P_2.3	2	0.61	1	1	1	1	2	0
NT_P_2.3+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_P_2.4+NT_P_4.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_2.4+T_P_3.2+NT_P_4.1+T_P_5.1	1	0.3	0	1	1	0	1	0
NT_P_2.5+NT_P_4.1	1	0.3	0	1	1	0	1	0
NT_P_2.5+T_P_5.1+NT_P_9.1+NT_P_13.1	1	0.3	1	0	1	0	1	0
NT_P_2.7+NT_P_4.1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_P_2.7+NT_P_4.1+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_P_2.7+NT_P_7.1	1	0.3	1	0	1	0	1	0
NT_P_3.1+NT_P_4.1+NT_P_5.1+NT_P_7.1+NT_P_12.2	1	0.3	1	0	0	1	1	0
NT_P_3.1+NT_P_4.1+NT_P_6.1	1	0.3	1	0	0	1	1	0
NT_P_3.2 +NT_P_13.1	1	0.3	0	1	0	1	1	0
NT_P_3.2 +NT_P_5.1+NT_P_7.1	1	0.3	1	0	1	0	1	0
NT_P_4.1	7	2.13	7	0	5	2	7	0
NT_P_4.1+NT_P_12.2	5	1.52	4	0	4	0	4	0
NT_P_4.1+NT_P_12.2+NT_P_12.5	1	0.3	1	0	0	1	1	0
NT_P_4.1+NT_P_12.2+NT_P_13.1	1	0.3	1	0	1	0	1	0
NT_P_4.1+NT_P_12.2+T_P_12.5	1	0.3	1	0	1	0	1	0
NT_P_4.1+NT_P_12.5	2	0.61	2	0	1	1	1	1
NT_P_4.1+NT_P_5.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
NT_P_4.1+NT_P_5.1+NT_P_13.1	1	0.3	1	0	1	0	1	0
NT_P_4.1+NT_P_6.1 +T_P_11.1 +NT_P_11.2+NT_P_12.2+NT_P_12.6	1	0.3	1	0	1	0	1	0

NT_P_4.1+NT_P_7.1	1	0.3	1	0	1	0	1	0
NT_P_4.1+NT_P_7.1+NT_P_12.1+NT_P_13.1	1	0.3	1	0	1	0	1	0
NT_P_4.1+NT_P_9.1	1	0.3	0	1	1	0	1	0
NT_P_5.1	1	0.3	1	0	1	0	1	0
NT_P_5.1+NT_P_11.1	1	0.3	1	0	1	0	1	0
NT_P_6.1 +NT_P_12.2+NT_P_13.1	1	0.3	1	0	1	0	1	0
T_C_3.3+NT_C_13.1+T_P_3.3+NT_P_13.1	1	0.3	1	0	0	1	1	0
T_HP_1.1+NT_HP_12.2+NT_P_13.1	1	0.3	1	0	0	1	1	0
T_HP_1.1+NT_HP_13.1	1	0.3	1	0	1	0	1	0
T_HP_1.1+NT_HP_2.4 +NT_HP_13.2+NT_P_1.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
T_HP_1.3+T_HP_1.7+NT_HP_2.7+NT_HP_7.1 +NT_HP_13.2	1	0.3	1	0	1	0	1	0
T_HP_12.2	2	0.61	2	0	2	0	1	1
T_HP_2.7+NT_HP_3.2+NT_HP_6.2	1	0.3	1	0	0	1	0	1
T_HP_3.1+NT_HP_4.1	1	0.3	1	0	0	1	0	1
T_HP_7.1	1	0.3	1	0	1	0	0	1
T_HP_7.1+NT_P_2.4+T_P_3.2+NT_P_4.1	1	0.3	0	1	0	1	1	0
T_P_1.1+NT_P_1.2+NT_P_1.4+NT_P_1.5+NT_P_4.1 +NT_P_12.2	1	0.3	1	0	0	1	0	1
T_P_1.1+NT_P_2.4+T_P_3.2+NT_P_12.2+NT_P_12. 5+NT_P_13.1	1	0.3	1	0	0	1	0	1
T_P_1.1+NT_P_3.2 +NT_P_12.2	1	0.3	1	0	0	1	1	0
T_P_1.3 +NT_P_2.7+NT_P_4.1+NT_P_12.1+NT_P_12.2	1	0.3	1	0	1	0	1	0
T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+N T_P_12.5+NT_P_13.1	1	0.3	0	1	0	1	1	0
T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+N T_P_13.1	1	0.3	0	1	0	1	1	0
T_P_2.1+T_P_3.2+NT_P_13.1	1	0.3	1	0	0	1	1	0
T_P_3.1+T_P_3.2+T_P_4.1 +NT_P_12.2	1	0.3	1	0	0	1	0	1
T_P_3.2+NT_P_4.1	1	0.3	1	0	1	0	1	0
T_P_3.2+NT_P_7.1+NT_P_13.1	1	0.3	0	1	0	1	1	0
T_P_4.1	1	0.3	1	0	1	0	1	0
T_P_4.1 +NT_P_6.1 +NT_P_12.2	1	0.3	1	0	1	0	1	0
UC	101	31	93	5	75	23	94	4
Total	**327**	**100**	**299**	**25**	**209**	**115**	**297**	**27**

Note:

KT Interventions in 15 studies assessing sustainability were:

case management, face-to-face/Internet-based self management, exercise program, Fluid Watchers LITE, Fluid Watchers PLUS, formal education, general health education, HF clinic follow-up, home visits, nurse management, patient education, peers for progress-diabetes, provider education, respiratory training, self-management telemedicine alerts

Appendix 12: Cochrane Effective Practice and Organisation of Care (EPOC) Risk of Bias Results

Study (Author,year)	1. Random sequence generation	2. Allocation concealment	3. Blinding of participants and personnel	4. Blinding of outcome assessment	5. Incomplete outcome data	6. Selective reporting	7. Other bias*
Cluster RCTs							
Baker, 2003[44]	Low risk	Low risk	Unclear risk	Low risk	Unclear risk	Unclear risk	Low risk
Beck, 1997[46]	Unclear risk	High risk	High risk	High risk	Low risk	Unclear risk	Unclear risk
Bruce, 2004[57]	Low risk	Unclear risk	Unclear risk	High risk	Low risk	High risk	Low risk
Bruce, 2015[58]	Unclear risk	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Low risk
Chen, 2015[36]	Low risk	Low risk	High risk	High risk	Low risk	High risk	Low risk
Cleveringa, 2008[66]	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	High risk	High risk
Coleman, 1999[67]	Unclear risk	Unclear risk	Unclear risk	Low risk	Low risk	Unclear risk	Unclear risk
de Lusignana, 2013[70]	Low risk	Low risk	Low risk	Low risk	Low risk	High risk	Low risk
DeVore, 2015[73]	Unclear risk	Unclear risk	High risk	High risk	Low risk	High risk	Low risk
Dopp, 2015[74]	Low risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Eccles, 2007[34]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Eckert, 2010[76]	Unclear risk	Low risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk
Fihn, 2004[80]	Unclear risk	Low risk	Unclear risk	Low risk	High risk	Unclear risk	Unclear risk
Fihn, 2011[81]	Unclear risk	Low risk	Low risk	High risk	Low risk	Unclear risk	Low risk
Forster, 2015[83]	Low risk	Low risk	Low risk	High risk	Low risk	Low risk	Low risk
Freund, 2016[85]	Low risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Goderis, 2010[27]	Low risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk
Heisler, 2012[28]	Low risk	Unclear risk	High risk	Low risk	Low risk	Low risk	Low risk
Hetlevik, 2000[94]	Unclear risk	Unclear risk	Unclear risk	Unclear risk	High risk	Unclear risk	Unclear risk
Kennedy, 2013[37]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Kennedy, 2015[105]	Low risk	Unclear risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Kiefe, 2001[31]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk

Study (Author,year)	1. Random sequence generation	2. Allocation concealment	3. Blinding of participants and personnel	4. Blinding of outcome assessment	5. Incomplete outcome data	6. Selective reporting	7. Other bias*
Kruis, 2014[109]	Low risk	Unclear risk	High risk	Unclear risk	Low risk	Low risk	Low risk
Krum, 2013[110]	Unclear risk	Unclear risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Levine, 2011[115]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk
Li, 2012[116]	Unclear risk	Unclear risk	Unclear risk	Low risk	Unclear risk	Unclear risk	Unclear risk
Lowrie, 2014[121]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Machline-Carrion, 2019[122]	Low risk	Low risk	Unclear risk	Unclear risk	Low risk	Unclear risk	High risk
McCluskey, 2016[127]	Unclear risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Mitchell, 2005[133]	Low risk	Unclear risk	High risk	Unclear risk	High risk	Unclear risk	Low risk
Moher, 2001[134]	Low risk	Low risk	High risk	High risk	Low risk	Unclear risk	Low risk
Morganroth, 2016[135]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	High risk
Murphy, 2009[137]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Olaiya, 2017[35]	Low risk	Low risk	Low risk	Low risk	Low risk	High risk	Low risk
De Fine Olivarius, 2001[33]	Low risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk
Pols, 2017[146]	Low risk	High risk	High risk	Low risk	Low risk	Low risk	Low risk
Rea, 2004[147]	Low risk	Unclear risk	High risk	Unclear risk	Unclear risk	Unclear risk	Low risk
Reiber, 2004[148]	Unclear risk	Unclear risk	High risk	Unclear risk	High risk	Unclear risk	Low risk
Sackley, 2015[152]	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Salisbury, 2018[154]	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Schafer, 2018[158]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Shea, 2006[30]	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Low risk	Low risk
Sonnichsen, 2010[162]	Low risk	Unclear risk	High risk	Low risk	Low risk	High risk	Low risk
Tjia, 2015[32]	Unclear risk	Unclear risk	High risk	High risk	Unclear risk	Unclear risk	Low risk
Vaillant-Roussel, 2016[169]	Low risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk

Study (Author,year)	1. Random sequence generation	2. Allocation concealment	3. Blinding of participants and personnel	4. Blinding of outcome assessment	5. Incomplete outcome data	6. Selective reporting	7. Other bias*
van de Ven, 2013[170]	Low risk	Low risk	High risk	High risk	Low risk	High risk	Low risk
Vickrey, 2006[26]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Vinereanu, 2017[172]	Low risk	Low risk	High risk	High risk	Low risk	Unclear risk	Low risk
Walters, 2013[175]	Low risk	Low risk	High risk	Unclear risk	Low risk	High risk	Low risk
Whittle, 2014[177]	Low risk	Unclear risk	High risk	Unclear risk	Low risk	High risk	Low risk
Wilcock, 2013[178]	Low risk	Unclear risk	High risk	High risk	Low risk	High risk	Low risk
Zwar, 2016[182]	Low risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
RCTs							
Ansari, 2003[43]	Low risk	Unclear risk	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk
Batchelor, 2012[45]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Beck, 2017[46]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Bekelman, 2015[48]	Low risk	Unclear risk	High risk	Unclear risk	Low risk	Low risk	Low risk
Benzo, 2016[49]	Low risk	Unclear risk	High risk	Low risk	Low risk	Low risk	Low risk
Blue, 2001[50]	Low risk	Unclear risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Bohingamu, 2019[51]	Unclear risk	Unclear risk	Unclear risk	High risk	Low risk	Unclear risk	Low risk
Bohm, 2016[52]	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	High risk
Team CPMMPE, 2007[53]	Low risk	Low risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Bosanquet, 2017[54]	Low risk	High risk	High risk	High risk	Low risk	Low risk	Low risk
Bourbeau, 2003[55]	Low risk	Low risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Boyne, 2012[56]	Low risk	Unclear risk	High risk	Low risk	Low risk	Low risk	Low risk
Bucknall, 2012[59]	Low risk	Low risk	Low risk	Low risk	Low risk	High risk	Low risk
Burns, 1995[60]	Low risk	Unclear risk	High risk	High risk	High risk	Unclear risk	Low risk
Burns, 2003[61]	Unclear risk	Unclear risk	Unclear risk	Low risk	High risk	High risk	Unclear risk
Callahan, 2006[62]	Low risk	Unclear risk	Unclear risk	Low risk	Low risk	Low risk	Low risk
Campbell, 1998[63]	Low risk	Unclear risk	High risk	Low risk	Low risk	Unclear risk	Unclear risk

Study (Author,year)	1. Random sequence generation	2. Allocation concealment	3. Blinding of participants and personnel	4. Blinding of outcome assessment	5. Incomplete outcome data	6. Selective reporting	7. Other bias*
Chi, 2012[64]	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk
Ciaschini, 2010[65]	Low risk	Unclear risk	High risk	High risk	Low risk	Low risk	High risk
Coull, 2004[68]	Low risk	Low risk	High risk	Low risk	Low risk	Unclear risk	Low risk
de la Porte, 2007[69]	Low risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk
DeBusk, 2004[71]	Unclear risk	Low risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Del Sindaco, 2007[72]	Unclear risk	Unclear risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Dracup, 2014[42]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Dunagan, 2005[75]	Unclear risk	Unclear risk	Unclear risk	Low risk	Low risk	Unclear risk	Low risk
Ell, 2007[77]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk
Fan, 2012[78]	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	High risk
Federman, 2019[79]	Unclear risk	Unclear risk	Low risk	Unclear risk	Low risk	Unclear risk	Low risk
Forster, 1996[82]	Low risk	Unclear risk	Unclear risk	Unclear risk	Low risk	Unclear risk	Low risk
Fortinsky, 2009[183]	Unclear risk	Unclear risk	High risk	High risk	High risk	Unclear risk	Unclear risk
Galbreath, 2004[86]	Low risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk
Gallagher, 1997[87]	Unclear risk	Unclear risk	High risk	High risk	Unclear risk	Unclear risk	Low risk
Gaugler, 2008[88]	Low risk	Low risk	High risk	High risk	Low risk	Unclear risk	Low risk
Gellis, 2012[89]	Low risk	Low risk	High risk	Low risk	High risk	Unclear risk	Low risk
Graven, 2016[90]	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Haerter, 2016[90]	Unclear risk	Unclear risk	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk
Hendriks, 2012[92]	Low risk	Unclear risk	High risk	Low risk	Low risk	High risk	Low risk
Hernandez, 2015[93]	Low risk	Low risk	High risk	Low risk	Unclear risk	Unclear risk	Low risk
Hogg, 2009[95]	Low risk	Low risk	Unclear risk	High risk	Low risk	Unclear risk	Low risk
Holbrook, 2011[96]	Unclear risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Holm, 2002[97]	Unclear risk	Unclear risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Holt, 2010[98]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Unclear risk

Study (Author,year)	1. Random sequence generation	2. Allocation concealment	3. Blinding of participants and personnel	4. Blinding of outcome assessment	5. Incomplete outcome data	6. Selective reporting	7. Other bias*
Hughes, 2000[99]	Unclear risk	Unclear risk	Unclear risk	Unclear risk	High risk	Unclear risk	Unclear risk
Hunger, 2015[100]	Low risk	Low risk	Unclear risk	Low risk	Low risk	High risk	Low risk
Irewall, 2015[101]	Low risk	Unclear risk	High risk	High risk	Low risk	High risk	Low risk
Jaarsma, 2008[102]	Low risk	Unclear risk	Unclear risk	Low risk	Low risk	High risk	Low risk
Joling, 2012[103]	Unclear risk	Unclear risk	High risk	Low risk	Low risk	High risk	Low risk
Karhula, 2015[104]	Low risk	Low risk	High risk	High risk	Low risk	High risk	Unclear risk
Khdour, 2009[106]	Low risk	Unclear risk	High risk	High risk	High risk	Unclear risk	Low risk
Kim, 2014[107]	Unclear risk	Unclear risk	High risk	High risk	High risk	High risk	Low risk
Ko, 2017[108]	Low risk	Unclear risk	High risk	Low risk	Low risk	Low risk	Low risk
Kurz, 2010[111]	Unclear risk	Low risk	High risk	High risk	High risk	Unclear risk	Low risk
Kalter-Leibovici, 2017[112]	Low risk	Unclear risk	High risk	Low risk	Low risk	Low risk	Low risk
Leveille, 1998[113]	Low risk	Unclear risk	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk
Leventhal, 2011[114]	Low risk	Low risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Licskai, 2016[117]	Unclear risk	Unclear risk	Unclear risk	Unclear risk	High risk	Unclear risk	Unclear risk
Lin, 2018[118]	Low risk	Low risk	High risk	High risk	High risk	Unclear risk	Low risk
Liu, 2008[119]	Low risk	Unclear risk	High risk	High risk	Low risk	High risk	Low risk
Lopez Cabezas, 2006[120]	Low risk	Unclear risk	High risk	High risk	High risk	Unclear risk	Low risk
Mahoney , 2003[123]	Low risk	Unclear risk	High risk	Low risk	Low risk	High risk	Unclear risk
Maltais, 2008[124]	Low risk	Low risk	High risk	High risk	Low risk	Unclear risk	Low risk
Markle-Reid, 2011[125]	Low risk	Low risk	High risk	Low risk	Unclear risk	Low risk	Unclear risk
Markun, 2015[126]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
McElrath, 2017[128]	Low risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk
McManus, 2014[129]	Unclear risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Meeuwsen, 2012[130]	Unclear risk	Unclear risk	High risk	Low risk	Low risk	High risk	Low risk

Study (Author,year)	1. Random sequence generation	2. Allocation concealment	3. Blinding of participants and personnel	4. Blinding of outcome assessment	5. Incomplete outcome data	6. Selective reporting	7. Other bias*
Meisinger, 2013[131]	Low risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Mejhert, 2004[132]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk
Moriyama, 2009[136]	Unclear risk	Unclear risk	High risk	High risk	High risk	Unclear risk	Unclear risk
Moy, 2016[38]	Low risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk
Nguyen, 2013[138]	Unclear risk	Unclear risk	Unclear risk	Unclear risk	High risk	High risk	Unclear risk
Ojeda, 2005[139]	Low risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Unclear risk
Olson, 2009[140]	Low risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk
Ortiz-Bautista, 2017[141]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Unclear risk
Ostwald, 2014[142]	Low risk	Unclear risk	High risk	High risk	Low risk	Unclear risk	Low risk
Palacio, 2015[41]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk
Peters-Klimm, 2010[143]	Low risk	Low risk	High risk	High risk	Low risk	High risk	Low risk
Piette, 2015[144]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Pinnock, 2013[145]	Low risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Rovner, 2020[149]	Low risk	Low risk	Low risk	High risk	Low risk	Unclear risk	Low risk
Rubenstein, 2007[150]	High risk	High risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Saal, 2015[151]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	High risk
Salinero-Fort, 2011[153]	Unclear risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk
Samus, 2014[155]	Low risk	Unclear risk	High risk	High risk	Low risk	High risk	Low risk
Sanchez-nieto, 2016[156]	Low risk	Unclear risk	Low risk	Low risk	Low risk	Unclear risk	High risk
Sarkadi, 2004[157]	Low risk	Low risk	Low risk	Low risk	High risk	Unclear risk	Low risk
Schrader, 2005[159]	Unclear risk	Unclear risk	High risk	Unclear risk	High risk	Unclear risk	Unclear risk
Schraeder, 2009[29]	Unclear risk	Unclear risk	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk
Smith, 1999[160]	Low risk	Unclear risk	High risk	High risk	High risk	Unclear risk	Unclear risk
Solomon, 2012[161]	Low risk	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Stewart, 2012[163]	Low risk	Unclear risk	High risk	Low risk	High risk	Low risk	Low risk

Study (Author,year)	1. Random sequence generation	2. Allocation concealment	3. Blinding of participants and personnel	4. Blinding of outcome assessment	5. Incomplete outcome data	6. Selective reporting	7. Other bias*
Stewart, 2015[164]	Low risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Subramanian, 2004[165]	Low risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Low risk
Suominen, 2015[166]	Low risk	Low risk	High risk	High risk	Unclear risk	Low risk	Low risk
Tomita, 2009[167]	Unclear risk	Unclear risk	High risk	High risk	Unclear risk	Unclear risk	Unclear risk
Tremont, 2008[84]	Unclear risk	Unclear risk	High risk	Low risk	High risk	Unclear risk	Low risk
Trento, 2010[168]	Low risk	Unclear risk	High risk	High risk	Low risk	High risk	High risk
Trofimov, 2015[39]	Unclear risk	Unclear risk	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk
Van Der Aa, 2015[171]	Low risk	Unclear risk	High risk	Low risk	Low risk	Low risk	Low risk
Wagenaar, 2019[173]	Low risk	Unclear risk	High risk	High risk	Low risk	Low risk	Low risk
Waldorff, 2012[174]	Low risk	Low risk	High risk	Low risk	Low risk	High risk	Low risk
Van Wetering, 2010[176]	Low risk	Low risk	High risk	High risk	Low risk	Low risk	Low risk
Wright, 2001[179]	Unclear risk	Unclear risk	High risk	High risk	High risk	Unclear risk	High risk
Xi, 2015[180]	Low risk	Unclear risk	High risk	Low risk	Low risk	Unclear risk	Low risk
Xiao, 2016[181]	Unclear risk	Unclear risk	High risk	High risk	High risk	Unclear risk	Low risk

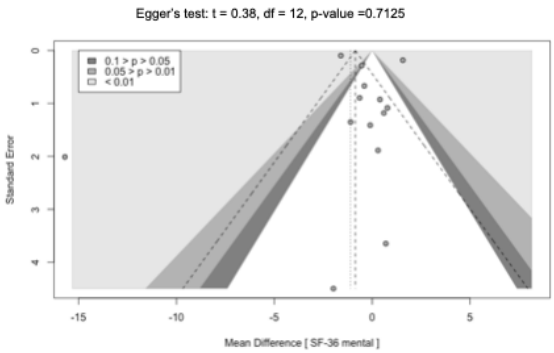
* Other bias refers to other sources of bias.

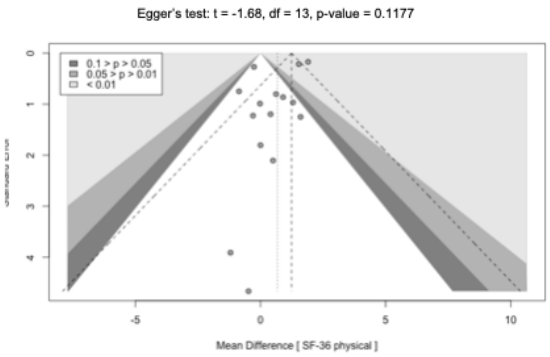
High risk of bias: There is at least one important risk of bias, for example a study had a potential source of bias related to the specific study design used or has been claimed to have been fraudulent or had some other problem such as a drug manufacturer funded study or a funding agency/pharma company involved with data collection, analysis, or report writing.

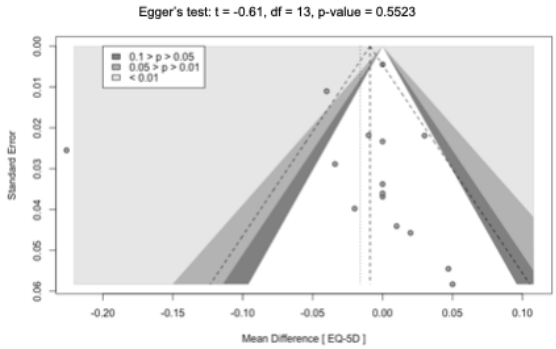
Unclear risk of bias: There may be a risk of bias, but there is either insufficient information to assess whether an important risk of bias exists or insufficient rationale or evidence that an identified problem will introduce bias, such as the role of pharmaceutical company funding is not clarified, or conflicts of interest are not declared.

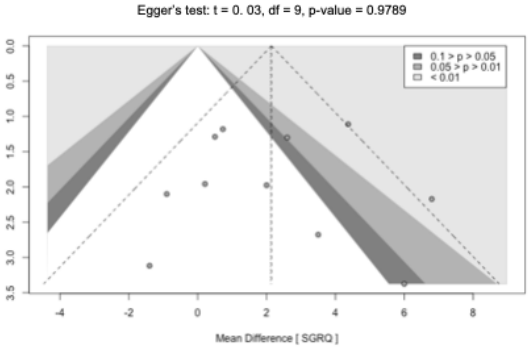
Low risk of bias - The study appears to be free of other sources of bias.

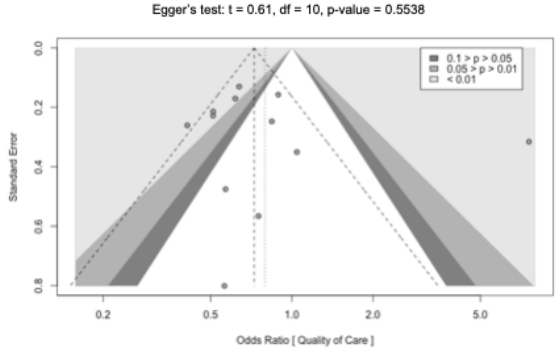
Appendix 13: Contour-Enhanced Funnel Plots











Appendix 14. Additional Analysis Results

Quality of Life

Short-Form (SF) Mental Health Survey

The 12 item Short-Form mental (SF-12 mental) was reported in five studies assessing six interventions plus usual care (Appendix 12). We performed a meta-analysis of four studies (2,978 participants) comparing any intervention vs usual care, which showed that KT interventions improved QOL compared to usual care, but with imprecise effect estimate (MD 1.27, 95% CI [-0.24, 2.78]; I^2=16%, τ=0.53; range of longer follow-up across studies 18-24 months) (Figure 4, Appendix 13). The combination of team changes, staff education, financial incentives, case management, promotion of self-management, and patient education interventions was associated with the largest effect compared with usual care, but evidence was from a single study (MD 2.00, 95% CI [0.95, 3.05]) [184].

For the outcome of SF-12 mental health survey, subgroup analysis showed there were no important differences between study settings or comorbidities, but a KT intervention effect was greater when more than one chronic disease was present (four chronic diseases: MD 2.00, 95% CI [0.95, 3.05], one RCT; one chronic disease: MD 0.63, 95% CI [−0.64, 1.90], 3 RCTs, I^2=0%, τ=0.00; Appendix 14). Additional analyses restricting to studies with history of prescription use, concomitant CDM therapy, and low ROB for incomplete outcome data and for selective outcome reporting also provided imprecise KT intervention effects for SF-12 mental (Appendix 15).

Short-Form (SF) Physical Health Survey

For SF-12 physical scale outcome, six studies were included that assessed seven interventions plus usual care. Our meta-analysis of five studies (2,581 participants, five interventions plus usual care) comparing any intervention vs usual care, showed that KT interventions improved QOL, with imprecise effect estimate (MD 3.72, 95% CI [-5.08, 12.52]; I^2=90%, τ=6.67; range of longer follow-up across

studies was 12-24 months; all studies were at low ROB for incomplete outcome data). Excluding an outlier [185], results suggested that KT interventions marginally improved QOL (MD 0.84, 95% CI [-0.02, 1.69]; I^2=16%, τ= 0.00).

For the outcome of the SF-12 physical scale, subgroup analysis showed no differences between study settings, number of chronic diseases or comorbidities (Appendix 13). Results of additional analyses restricting to studies with up to 80% male participants, history of prescription use, concomitant CDM therapy (allowed concomitant non-pharmacological therapies or procedures for all participants/arms during the study), and low ROB for selective outcome reporting, agreed with the SF-12 physical primary meta-analysis (Appendix 14). However, the KT intervention effect was greater when only men were included in a 12-month follow-up, yet this subgroup included only a single RCT [119] informed by 48 participants (MD 17.00, 95% CI [11.78, 22.22]).

Minnesota Living with Heart Failure Questionnaire (MLHFQ)

The MLHFQ scale was reported in eight studies of 10 interventions plus usual care. Meta-analysis of seven studies (1,580 participants) comparing any intervention vs usual care, showed that KT interventions improved QOL, but the effect was uncertain (MD -1.37, 95% CI [-7.39, 4.64]; I^2=82%, τ=5.82; range of longer follow-up across studies 12-25 months, single chronic disease across all studies; the proportion of male participants was less than 80% in all studies but one, which did not report this information).

Results were in agreement with primary meta-analysis when restricting to studies with reported study SD, low ROB due to attrition and selective reporting, history of prescription use, and concomitant CDM therapy. No major differences observed across subgroups of time in KT sustainability or a different number of comorbidities and settings (Appendices 14-15).

Appendix 15: Individual Study Results

Study	Treatment Comparison (EPOC) T1 VS T2	Treatment Comparison (BCT) T1 VS T2	Group 1: Mean/ SD/ total; Group 2: Mean/ SD/ total [continuous data]	Group 1: Events per total (n/N); Group 2: Events per total (n/N) [binary data]	MD (95% CI)	OR (95% CI)
Quality of life: 12 item Short-Form Mental Health Survey						
Dunagan 2005 [75]	relay+case-M+Self-M+px_educ VS relay+px_educ	NT_P_4.1+NT_P_5.1+NT_P_12.2 VS NT_P_4.1+NT_P_5.1+NT_P_13.1	Group 1: 6.3/10/76 Group 2: 7.6/12.3/75	N/A	-1.30 (-4.88 to 2.28)	N/A
Freund-2016 [85]	team+staff+finan+case-M+Self-M+px_educ VS UC	T_HP_1.1+NT_HP_2.4+NT_HP_13.2+NT_P_1.1+NT_P_12.2 VS UC	Group 1: 48.9/10.8/934 Group 2: 46.9/11.6/840	N/A	2.00 (0.95 to 3.05)	N/A
Bosanquet-2017[54]	team+EPR+relay+case-M+Self-M VS UC	NT_HP_2.4+NT_HP_2.7+NT_HP_4.1+NT_HP_12.5+NT_P_1.2+NT_P_1.3+NT_P_4.1+NT_P_12.2+NT_P_12.5 VS UC	Group 1: 40.1/11.34/249 Group 2: 38.9/10.84/236	N/A	1.20 (-0.77 to 3.17)	N/A
Murphy-2009[137]	staff+Self-M VS UC	NT_HP_1.4+NT_HP_4.1+NT_HP_6.1+NT_HP_12.2+NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 49.6/10.9/189 Group 2: 48.9/11.7/195	N/A	0.70 (-1.56 to 2.96)	N/A
Stewart-2015[164]	case-M+Self-M+px_educ VS UC	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 48.4/11.3/168 Group 2: 48.7/11.3/167	N/A	-0.30 (-2.72 to 2.12)	N/A

Quality of life: 36 item Short-Form Mental Health Survey						
Hogg-2009[95]	team+case-M VS UC	T_P_1.1+NT_P_3.2+NT_P_12.2 VS UC	N/A	N/A	1.10 (-1.55 to 3.75)	N/A
Kalter-Leibovici-2017[112]	team+relay+case-M+Self-M+px_educ VS UC	T_HP_7.1+NT_P_2.4+T_P_3.2+NT_P_4.1 VS UC	N/A	N/A	-1.57 (-1.93 to -1.21)	N/A
Karhula(a)-2015[104]	team+EPR+relay+case-M+Self-M+px_educ+mot_intervie VS UC	T_P_1.1+NT_P_2.4+T_P_3.2+NT_P_12.2+NT_P_12.5+NT_P_13.1 VS UC	Group 1: -0.05/9.22/190 Group 2: 0.55/8.65/79	N/A	-0.60 (-2.91 to 1.71)	N/A
Karhula(b)-2015[104]	team+EPR+relay+case-M+Self-M+px_educ+mot_intervie w VS UC	T_P_1.1+NT_P_2.4+T_P_3.2+NT_P_12.2+NT_P_12.5+NT_P_13.1 VS UC	Group 1: 1.06/9.16/180 Group 2: 1.84/7.04/70	N/A	-0.78 (-2.90 to 1.34)	N/A
Nguyen-2013[138]	team+case-M+Self-M+px_reminder+px_educ VS team+case-M+Self-M+px_educ+mot_intervie w VS px_educ	T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+NT_P_12.5+NT_P_13.1 VS T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+NT_P_13.1 VS NT_P_3.2+NT_P_13.1	Group 1: 52.2/11.71/43 Group 2: 50.6/12.25/41 Group 3: 52.1/11.76/41	N/A	0.10 (-4.92 to 5.12) (group 1 vs group 3) -1.50 (-6.70 to 3.70) (group 2 vs group 3) -1.60 (-6.73 to 3.53) (group 1 vs group 2)	N/A
Fihn-2004[80]	AF+staff VS UC	NT_HP_4.1+NT_HP_6.2+NT_HP_7.1 VS UC	N/A	N/A	0.53 (-0.03 to 1.09)	N/A
Markle-Reid-2011[125]	team+staff+case-M+Self-M+px_educ+px_finan VS UC	NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2+T_P_12.5 VS	Group 1: 69.55/22.12/43 Group 2: 67.57/18.58/39	N/A	1.98 (-6.84 to 10.80)	N/A

		UC				
Peters-Klimm-2010[143]	team+EPR+relay+AF+case-M+Self-M+px_educ VS UC	NT_HP_2.7+NT_HP_12.2+NT_HP_12.5+NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 46.6/9.9/97 Group 2: 46.5/9.9/100	N/A	0.10 (-2.67 to 2.87)	N/A
Subramanian-2004[165]	staff+clin_reminder VS UC	NT_HP_4.1+NT_HP_7.1+T_HP_9.1 VS UC	Group 1: 3.7/1.3/355 Group 2: 2.1/1.3/365	N/A	1.60 (1.41 to 1.79)	N/A
Xiao-2016[181]	staff+case-M+Self-M VS UC	NT_C_1.2+NT_C_1.3+NT_C_2.4+NT_C_2.7+NT_C_4.1+NT_C_12.2 VS UC	Group 1: 38.7/7/31 Group 2: 23/8.6/30	N/A	15.70 (11.76 to 19.64)	N/A
Kruis-2014[109]	AF+staff+Self-M+mot_interview VS UC	NT_HP_1.3+NT_HP_4.1+NT_HP_6.2 VS UC	Group 1: 0.73/9.67/240 Group 2: 0.09/9.77/231	N/A	0.64 (-1.12 to 2.40)	N/A
Vaillant-Roussel-2016[169]	staff+case-M+Self-M+px_educ+mot_interview VS UC	NT_HP_4.1+NT_HP_6.1+NT_P_1.3+NT_P_4.1 VS UC	Group 1: 58/22.1/76 Group 2: 58.7/23.9/83	N/A	-0.70 (-7.85 to 6.45)	N/A
Walters-2013[175]	staff+case-M+Self-M+px_educ VS UC	NT_HP_4.1+NT_HP_12.2+NT_P_1.1+NT_P_1.2+NT_P_1.4+T_P_4.1+NT_P_11.2+NT_P_12.2 VS UC	Group 1: 50.2/11.4/67 Group 2: 50.5/10.5/68	N/A	-0.30 (-4.00 to 3.40)	N/A
Galbreath-2004[86]	team+relay+staff+case-M+Self-M+px_educ VS team+staff+case-M+Self-M+px_educ	NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2+NT_P_12.5 VS	Group 1: 53.2/10.5/354 Group 2: 53.8/11/356 Group 3: 53.1/10.1/359	N/A	0.10 (-1.41 to 1.61) (group 1 vs group 3) 0.70 (-0.85 to 2.25) (group 2 vs group 3)	N/A

	VS UC	NT_P_4.1+NT_P_12.2+NT_P_12.5 VS UC			0.60 (-0.98 to 2.18) (group 1 vs group 2)	
Eccles-2007[34]	EPR+staff+clin_reminder+px_reminder VS UC	NT_HP_4.1+NT_HP_7.1+NT_HP_12.1 VS UC	Group 1: 45.8/12.1/311 Group 2: 46.2/11.8/360	N/A	-0.40 (-2.22 to 1.42)	N/A
Quality of life: 12 item Short-Form Physical Health Survey						
Dunagan-2005[75]	relay+case-M+Self-M+px_educ VS relay+px_educ	NT_P_4.1+NT_P_5.1+NT_P_12.2 VS NT_P_4.1+NT_P_5.1+NT_P_13.1	Group 1: -1.2/13/60 Group 2: -2.5/12/61	N/A	1.30 (-3.16 to 5.76)	N/A
Freund-2016[85]	team+staff+finan+case-M+Self-M+px_educ VS UC	T_HP_1.1+NT_HP_2.4+NT_HP_13.2+NT_P_1.1+NT_P_12.2 VS UC	Group 1: 36.5/10.6/777 Group 2: 35.5/10.2/711	N/A	1.00 (-0.06 to 2.06)	N/A
Bosanquet-2017[54]	team+EPR+relay+case-M+Self-M VS UC	NT_HP_2.4+NT_HP_2.7+NT_HP_4.1+NT_HP_12.5+NT_P_1.2+NT_P_1.3+NT_P_4.1+NT_P_12.2+NT_P_12.5 VS UC	Group 1: 34/13.51/249 Group 2: 35.1/12.11/236	N/A	-1.10 (-3.38 to 1.18)	N/A
Murphy-2009[137]	staff+Self-M VS UC	NT_HP_1.4+NT_HP_4.1+NT_HP_6.1+NT_HP_12.2+NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 40.5/11.1/159 Group 2: 38.8/11.1/173	N/A	1.70 (-0.69 to 4.09)	N/A
Stewart-2015[164]	case-M+Self-M+px_educ VS UC	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 38.1/10.8/116 Group 2: 36.6/12.1/112	N/A	1.50 (-1.48 to 4.48)	N/A

Liu-2008[119]	relay+Self-M+px_reminder+px_educ VS UC	NT_P_1.1+NT_P_2.3+NT_P_4.1+NT_P_7.1+NT_P_12.5+NT_P_12.6 VS UC	Group 1: 47.9/7.35/24 Group 2: 30.9/10.78/24	N/A	17 (11.78 to 22.22)	N/A
Quality of life: 36 item Short-Form Physical Health Survey						
Hogg-2009[95]	team+case-M VS UC	T_P_1.1+NT_P_3.2+NT_P_12.2 VS UC	N/A	N/A	-1.60 (-4.05 to 0.85)	N/A
Kalter-Leibovici-2017[112]	team+relay+case-M+Self-M+px_educ VS UC	T_HP_7.1+NT_P_2.4+T_P_3.2+NT_P_4.1 VS UC	N/A	N/A	-1.53 (-1.95 to -1.11)	N/A
Karhula-2015a[104]	team+EPR+relay+case-M+Self-M+px_educ+mot_intervie VS UC	T_P_1.1+NT_P_2.4+T_P_3.2+NT_P_12.2+NT_P_12.5+NT_P_13.1 VS UC	Group 1: 1.25/6.27/162 Group 2: 0.39/4.65/68	N/A	0.86 (-0.61 to 2.33)	N/A
Karhula-2015b[104]	team+EPR+relay+case-M+Self-M+px_educ+mot_interview VS UC	T_P_1.1+NT_P_2.4+T_P_3.2+NT_P_12.2+NT_P_12.5+NT_P_13.1 VS UC	Group 1: 0.53/5.76/146 Group 2: 0.51/6.43/55	N/A	0.02 (-1.92 to 1.96)	N/A
Nguyen-2013[138]	team+case-M+Self-M+px_reminder+px_educ VS team+case-M+Self-M+px_educ+mot_interview VS px_educ	T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+NT_P_12.5+NT_P_13.1 VS T_P_1.4+T_P_2.2+NT_P_2.3+NT_P_3.1+T_P_3.2+NT_P_13.1 VS NT_P_3.2+NT_P_13.1	Group 1: 38.9/11.21/43 Group 2: 35.8/11.6/41 Group 3: 35.2/11.27/41	N/A	3.70 (-1.11 to 8.51) (group 1 vs group 3) 0.60 (-4.35 to 5.55) (group 2 vs group 3) -3.10 (-7.98 to 1.78) (group 1 vs group 2)	N/A
Fihn-2004[80]	AF+staff VS UC	NT_HP_4.1+NT_HP_6.2+NT_HP_7.1	N/A	N/A	0.26 (-0.27 to 0.79)	N/A

		VS UC				
Markle-Reid-2011[125]v	team+staff+case-M+Self-M+px_educ+px_finan VS UC	NT_P_1.1+NT_P_1.4+NT_P_4.1+NT_P_12.2+T_P_12.5 VS UC	Group 1: 48.29/23.23/43 Group 2: 47.81/18.96/39	N/A	0.48 (-8.66 to 9.62)	N/A
Peters-Klimm-2010[143]	team+EPR+relay+AF+case-M+Self-M+px_educ VS UC	NT_HP_2.7+NT_HP_12.2+NT_HP_12.5+NT_P_1.3+NT_P_2.4+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 38.3/8.6/97 Group 2: 38/8.6/100	N/A	0.30 (-2.10 to 2.70)	N/A
Schrader-2005[159]	team+staff+case-M+Self-M+px_educ VS UC	NT_HP_4.1+NT_HP_12.2 VS UC	Group 1: 36.7/7.35/213 Group 2: 37.6/10.78/237	N/A	-0.90 (-2.59 to 0.79)	N/A
Galbreath-2004[86]	team+relay+staff+case-M+Self-M+px_educ VS UC	NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_12.2+NT_P_12.5 VS UC	Group 1: 32.1/12.4/354 Group 2: 33.4/13.4/359	N/A	-1.30 (-3.19 to 0.59)	N/A
Subramanian-2004[165]	staff+clin_reminder VS UC	NT_HP_4.1+NT_HP_7.1+T_HP_9.1 VS UC	Group 1: -0.6/2/269 Group 2: 1.3/2/280	N/A	-1.90 (-2.23 to -1.57)	N/A
Xiao-2016[181]	staff+case-M+Self-M VS UC	NT_C_1.2+NT_C_1.3+NT_C_2.4+NT_C_2.7+NT_C_4.1+NT_C_12.2 VS UC	Group 1: 41.1/7.7/31 Group 2: 41.6/8.7/30	N/A	-0.50 (-4.63 to 3.63)	N/A
Kruis-2014[109]	AF+staff+Self-M+mot_interview VS UC	NT_HP_1.3+NT_HP_4.1+NT_HP_6.2 VS UC	Group 1: -1.1/8.65/240 Group 2: -0.48/8.77/231	N/A	-0.62 (-2.19 to 0.95)	N/A
Vaillant-Roussel-2016[169]	staff+case-M+Self-M+px_educ+mot_interview VS	NT_HP_4.1+NT_HP_6.1+NT_P_1.3+NT_P_4.1 VS UC	Group 1: 52.8/23.8/76 Group 2: 51.6/25.5/83	N/A	1.20 (-6.46 to 8.86)	N/A

	UC					
Walters-2013[175]	staff+case-M+Self-M+px_educ VS UC	NT_HP_4.1+NT_HP_12.2+NT_P_1.1+NT_P_1.2+NT_P_1.4+T_P_4.1+NT_P_11.2+NT_P_12.2 VS UC	Group 1: 38.5/10.3/58 Group 2: 38.5/9.4/62	N/A	0.00 (-3.54 to 3.54)	N/A
Eccles-2007[34]	EPR+staff+clin_reminder+px_reminder VS UC	NT_HP_4.1+NT_HP_7.1+NT_HP_12.1 VS UC	Group 1: 29.7/15.6/311 Group 2: 30.1/15.3/360	N/A	-0.40 (-2.75 to 1.95)	N/A
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)						
Team CPMMPE-2007[53]	team+px_educ VS UC	T_HP_12.2 VS UC	Group 1: 0.58/0.07/810 Group 2: 0.58/0.07/422	N/A	0.00 (-0.01 to 0.01)	N/A
Freund-2016[85]	team+staff+finan+case-M+Self-M+px_educ VS UC	T_HP_1.1+NT_HP_2.4+NT_HP_13.2+NT_P_1.1+NT_P_12.2 VS UC	Group 1: 0.65/0.22/864 Group 2: 0.61/0.23/806	N/A	0.04 (0.02 to 0.06)	N/A
Kennedy-2013[37]	staff+Self-M VS UC	T_HP_3.1+NT_HP_4.1 VS UC	Group 1: 0.6/0.3/277 Group 2: 0.6/0.3/409	N/A	0.00 (-0.05 to 0.05)	N/A
van de Ven-2013[170]	Staff VS UC	NT_HP_1.4+NT_HP_4.1+NT_HP_8.1 VS UC	Group 1: 0.35/0.26/49 Group 2: 0.36/0.22/79	N/A	-0.01 (-0.10 to 0.08)	N/A
Forster-2015[83]	team+case-M+Self-M+px_educ VS UC	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_7.1+NT_P_12.2 VS UC	Group 1: 0.51/0.46/134 Group 2: 0.56/0.48/128	N/A	-0.05 (-0.16 to 0.06)	N/A
Sackley-2015[152]	staff+case-M+Self-M+px_educ VS UC	NT_HP_4.1 VS UC	Group 1: 0.2/0.36/160 Group 2: 0.18/0.31/123	N/A	0.02 (-0.06 to 0.10)	N/A
Schafer-2018[158]	staff+Self-M+px_educ VS	NT_HP_4.1 VS UC	Group 1: 0.68/0.32/86 Group 2:	N/A	-0.02 (-0.11 to 0.07)	N/A

	UC		0.7/0.28/87			
Van Der Aa-2015[171]	case-M+Self-M+px_educ VS UC	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_11.2+NT_P_12.2 VS UC	Group 1: 0.7/0.3/131 Group 2: 0.7/0.3/134	N/A	0.00 (-0.07 to 0.07)	N/A
Stewart-2015[164]	case-M+Self-M+px_educ VS UC	NT_P_1.2+NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 0.68/0.25/116 Group 2: 0.68/0.26/112	N/A	0.00 (-0.07 to 0.07)	N/A
Beck-2017[47]	team+case-M+px_finan VS UC	NT_P_4.1+NT_P_12.2 VS UC	Group 1: 0/0.25/97 Group 2: 0/0.25/98	N/A	0.00 (-0.07 to 0.07)	N/A
Kruis-2014[109]	AF+staff+Self-M+mot_interview VS UC	NT_HP_1.3+NT_HP_4.1+NT_HP_6.2 VS UC	Group 1: -0.04/0.24/240 Group 2: -0.01/0.24/231	N/A	-0.03 (-0.07 to 0.01)	N/A
Stewart-2012[163]	team+case-M VS UC	NT_P_12.2 VS UC	Group 1: -0.136/0.363/87 Group 2: -0.183/0.35/84	N/A	-0.05 (-0.15 to 0.06)	N/A
McManus-2014[129]	relay+Self-M+px_educ VS UC	NT_P_1.1+NT_P_2.4+NT_P_4.1+NT_P_12.5 VS UC	Group 1: 0.816/0.254/276 Group 2: 0.806/0.258/276	N/A	0.01 (-0.03 to 0.05)	N/A
Lin-2018[118]	team+case-M+px_educ VS UC	NT_HP_12.2+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 0.216/0.16/87 Group 2: -0.01/0.18/91	N/A	0.23 (0.18 to 0.28)	N/A
Lopez Cabezas-2006[120]	case-M+px_educ VS UC	NT_C_1.2+NT_C_4.1+NT_C_12.2+NT_P_1.2+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 0.64/0.154/70 Group 2: 0.606/0.178/64	N/A	0.03 (-0.02 to 0.09)	N/A
Quality of life: St George's Respiratory Questionnaire						

Ko-2017[108]	case-M+Self-M+px_educ VS UC	NT_P_1.3+NT_P_4.1+NT_P_11.2+NT_P_12.2+NT_P_12.6 VS UC	Group 1: -6.9/15.3/90 Group 2: -0.1/13.8/90	N/A	-6.80 (-11.06 to -2.54)	N/A
Bourbeau-2003[55]	case-M+Self-M+px_educ VS UC	NT_P_1.4+T_P_2.3 VS UC	Group 1: -3.5/14.99/96 Group 2: -1.5/12.18/95	N/A	-2.00 (-5.87 to 1.87)	N/A
Bucknall-2012[59]	case-M+Self-M VS UC	NT_P_1.1+NT_P_2.4+NT_P_2.7+NT_P_3.1+T_P_4.1 VS UC	Group 1: -2.99/12.56/232 Group 2: 1.38/11.33/232	N/A	-4.37 (-6.55 to -2.19)	N/A
Fan-2012[78]	case-M+Self-M VS UC	NT_P_1.1+NT_P_2.4+NT_P_2.7+NT_P_3.1+T_P_4.1 VS UC	Group 1: 51.3/13.3/209 Group 2: 51.8/13.3/217	N/A	-0.50 (-3.03 to 2.03)	N/A
Hernandez 2015[93]	case-M+Self-M VS UC	NT_P_1.1+NT_P_2.4+NT_P_2.7+NT_P_3.1+T_P_4.1 VS UC	Group 1: 43/20/71 Group 2: 49/22/84	N/A	-6.00 (-12.62 to 0.62)	N/A
Khdour-2009[106]	case-M+Self-M VS UC	NT_P_1.3+NT_P_1.4+NT_P_4.1+NT_P_6.1+NT_P_7.1+NT_P_12.2 VS UC	Group 1: 61.8/16.55/86 Group 2: 65.3/18.61/87	N/A	-3.50 (-8.75 to 1.75)	N/A
Pinnock-2013[145]	relay+Self-M+px_educ VS UC	NT_HP_7.1+NT_P_2.4+NT_P_3.2+NT_P_4.1 VS UC	Group 1: 68.2/16.3/128 Group 2: 67.3/17.3/128	N/A	0.90 (-3.22 to 5.02)	N/A
Xi-2015[180]	Self-M+px_educ VS px_educ	NT_P_2.5+NT_P_4.1 VS NT_P_13.1	Group 1: 59.6/5.4/30 Group 2: 63.66/3.6/30	N/A	-4.06 (-6.38 to -1.74)	N/A
Van Wetering-2010[176]	team+Self-M+px_educ+mot_interview VS	NT_P_3.1+NT_P_4.1+NT_P_5.1+NT_P_7.1+NT_P_12.2	N/A	N/A	-2.60 (-5.15 to -0.05)	N/A

	UC	VS UC				
Zwar-2016[182]	EPR+staff VS UC	NT_HP_1.3+ NT_HP_2.2+ NT_HP_4.1+ T_HP_12.1 VS UC	Group 1: 16.85/15.2/136 Group 2: 17.06/14.9/104	N/A	-0.21 (-4.05 to 3.63)	N/A
Kruis-2014[109]	AF+staff+Self-M+mot_interview VS UC	NT_HP_1.3+ NT_HP_4.1+ NT_HP_6.2 VS UC	Group 1: -0.4/12.67/241 Group 2: 0.33/13.00/232	N/A	-0.73 (-3.04 to 1.58)	N/A
Walters-2013[175]	staff+case-M+Self-M+px_educ VS UC	NT_HP_4.1+ NT_HP_12.2 +NT_P_1.1+ NT_P_1.2+N T_P_1.4+T_ P_4.1+NT_P _11.2+ NT_P_12.2 VS UC	Group 1: 41.9/18.9/67 Group 2: 40.5/17.4/69	N/A	1.40 (-4.71 to 7.51)	N/A
Quality of life: Minnesota Living with Heart Failure Questionnaire						
Chi-2012[64]	Self-M VS UC	NT_P_2.3 VS UC	Group 1: 21.11/18.3/84 Group 2: 34.53/14.85/87	N/A	-13.42 (-18.43 to -8.41)	N/A
Ortiz-Bautista-2017[141]	team+case-M+px_educ VS UC	NT_P_4.1+N T_P_12.2 VS UC	Group 1: 23.46/22.1/84 Group 2: 19.8/23.3/43	N/A	3.66 (-4.76 to 12.08)	N/A
Piette-2015[144]	relay+Self-M+px_reminder+px_educ VS relay+Self-M+px_educ	NT_HP_7.1+ NT_C_4.1+N T_C_7.1+NT _P_2.2+NT_ P_2.3+NT_P _3.2+NT_P_ 7.1+NT_P_1 2.2+NT_P_1 2.5 VS NT_HP_7.1+ NT_C_13.1+ NT_P_2.3+N T_P_12.2+N T_P_12.5	N/A	N/A	-0.74 (-5.43 to 3.95)	N/A
Vaillant-Roussel-2016[169]	case-M+Self-M VS UC	NT_HP_4.1+ NT_HP_6.1+ NT_P_1.3+N T_P_4.1 VS UC	Group 1: 33.4/22.1/76 Group 2: 27.2/23.3/83	N/A	6.20 (-0.86 to 13.26)	N/A

Stewart-2012[163]	team+case-M VS UC	NT_P_12.2 VS UC	Group 1: -9.75/11.68/143 Group 2: -8/15.84/137	N/A	1.75 -1.52 to 5.02)	N/A
de la Porte-2007[69]	team+case-M+Self-M+px_educ VS UC	NT_P_1.1+NT_P_2.5+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 30.2/22.1/118 Group 2: 34.5/23.3/122	N/A	-4.30 (-10.04 to 1.44)	N/A
Ojeda-2005[139]	Self-M+px_educ VS UC	NT_P_1.1+NT_P_4.1+NT_P_12.2 VS UC	Group 1: 35.7/18.9/76 Group 2: 37.8/21/77	N/A	-2.10 (-8.43 to 4.23)	N/A
Wagenaar-2019[173]	EPR+relay+case-M+px_reminder+px_educ VS Self-M+px_reminder VS UC	NT_HP_7.1+NT_HP_12.5+NT_P_1.2+NT_P_1.3+NT_P_2.4+NT_P_2.7+NT_P_4.1+NT_P_7.1+NT_P_12.2+NT_P_12.5 VS NT_P_1.2+NT_P_4.1+NT_P_7.1+NT_P_12.5 VS UC	Group 1: 25.5/27.8/150 Group 2: 28.3/31/150 Group 3: 26.5/32.5/150	N/A	-1.00 (-7.84 to 5.84) (group 1 vs group 3) 1.80 (-5.39 to 8.99) (group 2 vs group 3) 2.80 (-3.86 to 9.46) (group 1 vs group 2)	N/A
Quality of Care						
Baker-2003[44]	AF+staff VS staff	NT_HP_1.3+T_HP_2.2+NT_HP_6.2 VS NT_HP_1.3+NT_HP_9.1	N/A	Group 1: 151/176 Group 2: 298/361	N/A	0.78 (0.47 to 1.30)
Kiefe-2001[31]	cQI+AF VS UC	NT_HP_1.2+NT_HP_1.3+T_HP_2.2+NT_HP_6.2 VS UC	N/A	Group 1: 162/279 Group 2: 129/280	N/A	0.62 (0.44 to 0.86)
Levine-2011[115]	staff+clin_reminder VS UC	NT_HP_4.1+NT_HP_7.1 VS UC	N/A	Group 1: 547/640 Group 2: 508/605	N/A	0.89 (0.65 to 1.21)
Vinereanu-2017[172]	EPR+AF+staff+px_educ VS UC	NT_HP_2.2+NT_HP_9.1+T_HP_13.2+NT_C_13.1+NT_P_13.1	N/A	Group 1: 171/214 Group 2: 132/197	N/A	0.51 (0.33 to 0.80)

		VS UC				
Ansari-2003[43]	staff+clin_reminder+px_reminder VS team+staff+case-M VS staff	NT_HP_1.1+NT_HP_2.3+NT_HP_4.1+NT_HP_7.1+NT_HP_9.1+NT_HP_12.1+NT_HP_12.2+NT_HP_12.5+NT_P_7.1 VS NT_HP_3.2+NT_HP_4.1+NT_HP_9.1+NT_HP_4.1+NT_HP_9.1+NT_HP_12.2 VS NT_HP_4.1+NT_HP_7.1	N/A	Group 1: 1/64 Group 2: 23/54 Group 3: 5/51	N/A	6.85 (0.77 to 60.61) (group 1 vs group 3) 0.15 (0.05 to 0.43) (group 2 vs group 3) 46.74 (6.03 to 362.29)) (group 1 vs group 2)
Galbreath-2004[86]	team+staff+case-M+Self-M+px_educ VS UC	NT_P_2.5+NT_P_4.1+NT_P_9.1+NT_P_12.2+NT_P_12.5 VS UC	N/A	Group 1: 386/710 Group 2: 155/359	N/A	0.64 (0.49 to 0.82)
Lowrie-2014[121]	team+staff VS UC	NT_HP_1.2+NT_HP_1.3+NT_HP_2.7+NT_HP_4.1+NT_HP_9.1+NT_HP_12.2 VS UC	N/A	Group 1: 40/43 Group 2: 30/34	N/A	0.56 (0.12 to 2.70)
Morganroth-2016[135]	EPR+AF+staff+clin_reminder VS UC	NT_HP_4.1+NT_HP_6.2+NT_HP_7.1+NT_HP_12.5 VS UC	N/A	Group 1: 33/43 Group 2: 30/46	N/A	0.57 (0.22 to 1.44)
Zwar-2016[182]	EPR+staff VS UC	NT_HP_1.3+NT_HP_2.2+NT_HP_4.1+T_HP_12.1 VS UC	N/A	Group 1: 50/132 Group 2: 83/101	N/A	7.56 (4.07 to 14.05)
Mitchell-2005[133]	AF+staff VS UC	NT_HP_4.1+NT_HP_6.2 VS UC	N/A	Group 1: 77/380 Group 2: 27/153	N/A	0.84 (0.52 to 1.37)

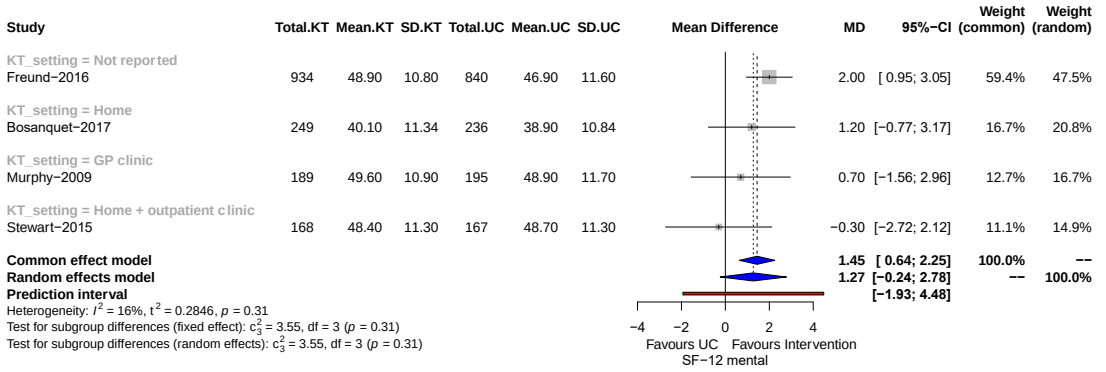
Sonnichsen-2010[162]	staff+case-M+Self-M+px_educ VS UC	NT_HP_4.1 VS UC	N/A	Group 1: 10/23 Group 2: 11/30	N/A	0.75 (0.25 to 2.28)
Beck-1997[46]	team+case-M+px_educ VS UC	NT_P_4.1+NT_P_12.2 VS UC	N/A	Group 1: 130/160 Group 2: 103/161	N/A	0.41 (0.25 to 0.68)
Eccles-2007[34]	EPR+staff+clin_reminder+px_reminder VS UC	NT_HP_4.1+NT_HP_7.1+NT_HP_12.1 VS UC	N/A	Group 1: 171/216 Group 2: 165/250	N/A	0.51 (0.34 to 0.78)
Hetlevik-2000[94]	EPR+staff+clin_reminder+px_educ VS UC	NT_HP_4.1+NT_HP_7.1+NT_HP_12.5 VS UC	N/A	Group 1: 19/104 Group 2: 21/111	N/A	1.04 (0.52 to 2.08)

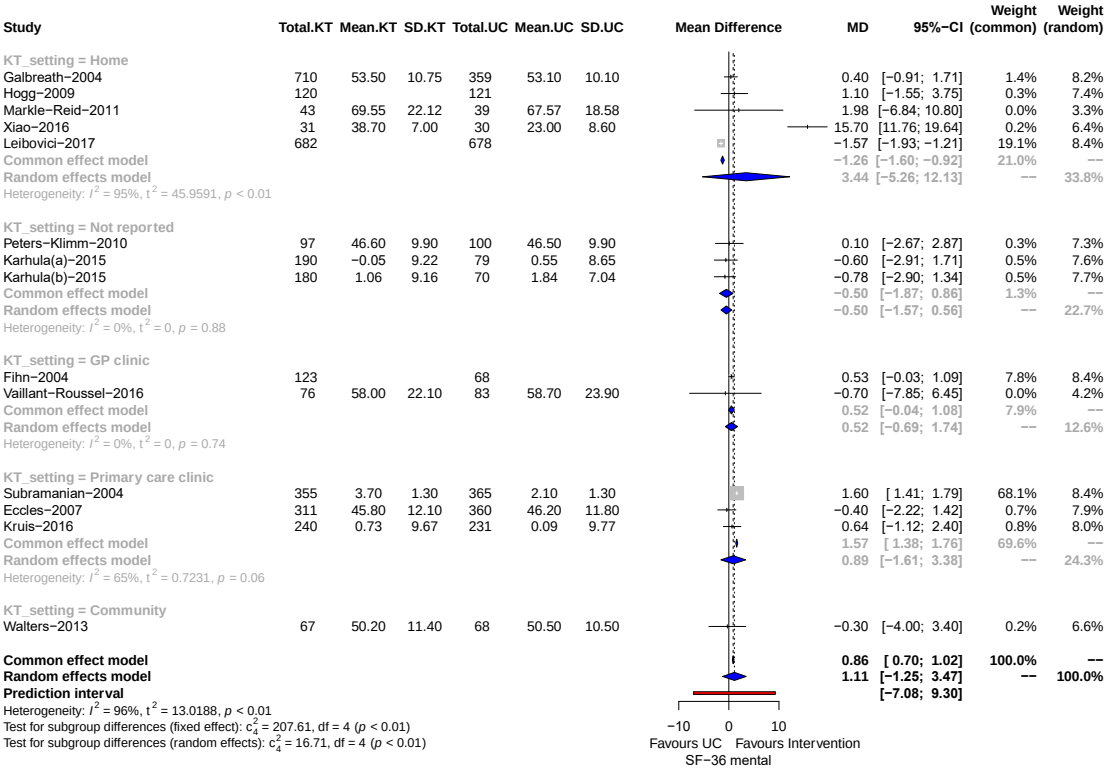
Appendix 16: Meta-analysis Results of All Interventions vs Usual Care

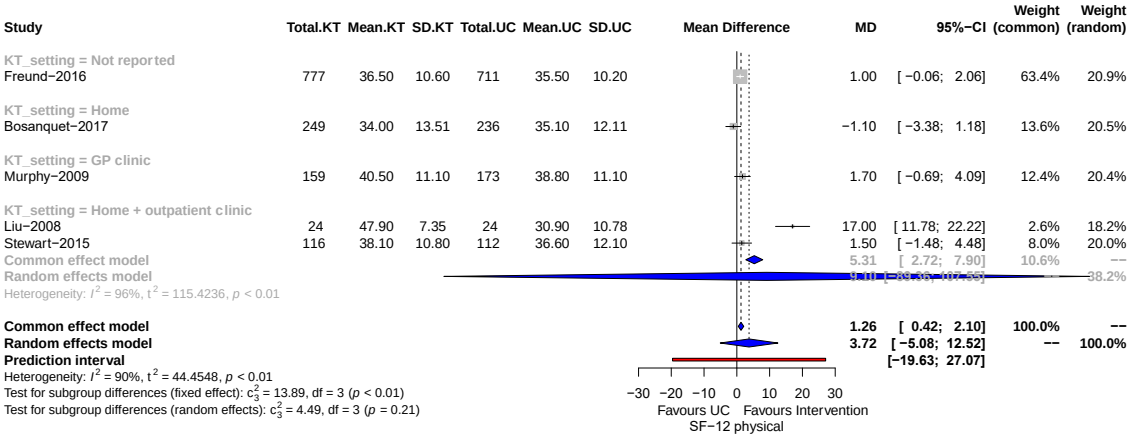
Outcome	No of studies (No of patients)	MD/OR (95% CI) [fixed-effect model]	MD/OR (95% CI) [random-effects model]	95% PI	τ (95% CI)	I^2 (95% CI)	Q (d.f.); p-value
Quality of life: 12 item Short-Form Mental Health Survey	4 (2,978)	MD: 1.45 (0.64 to 2.25)	MD: 1.27 (-0.24 to 2.78)	-1.94 to 4.48	0.53 (0.00 to 3.45)	16% (0% to 87%)	3.55 (3); 0.31
Quality of life: 36 item Short-Form Mental Health Survey	14 (5,876)	MD: 0.86 (0.70 to 1.02)	MD: 1.11 (-1.25 to 3.47)	-7.08 to 9.30	3.61 (2.42 to 6.59)	96% (94% to 97%)	297.38 (13); <0.0001
Quality of life: 12 item Short-Form Physical Health Survey	5 (2,581)	MD: 1.26 (0.42 to 2.10)	MD: 3.72 (-5.08 to 12.52)	-19.63 to 27.07	6.67 3.68 to 20.96)	90% (79% to 95%)	39.44 (4); <0.0001
Quality of life: 36 item Short-Form Physical Health Survey	15 (5,678)	MD: -1.24 (-1.46 to -1.02)	MD: -0.68 (-1.20 to -0.15)	-2.55 to 1.98	0.81 (0.31 to 1.05)	77% (63% to 86%)	61.05 (14); <0.0001
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	15 (6,628)	MD: 0.01 (0.00 to 0.02)	MD: 0.02 (-0.02 to 0.05)	-0.12 to 0.15	0.06 (0.04 to 0.10)	85% (76% to 90%)	91.38 (14); <0.0001
Quality of life: St George's Respiratory Questionnaire	11 (2,893)	MD: -2.14 (-3.12 to -1.16)	MD: -2.12 (-3.72 to -0.51)	-5.76 to 1.52	1.45 (0.00 to 4.10)	44% (0% to 72%)	17.73 (10.00); 0.06
Quality of life: Minnesota Living with Heart Failure Questionnaire	7 (1,580)	MD: -1.48 (-3.48 to -0.52)	MD: -1.37 (-7.39 to 4.64)	-17.65 to 14.91	5.82 (2.98 to 13.88)	82% (63% to 91%)	32.90 (6); <0.0001
Quality of care	12 (5,271)	OR: 1.38 (1.21 to 1.57)	OR: 1.26 (0.77 to 2.05)	0.24 to 6.49	0.70 (0.44 to 1.25)	84% (74% to 91%)	70.28 (11); <0.0001

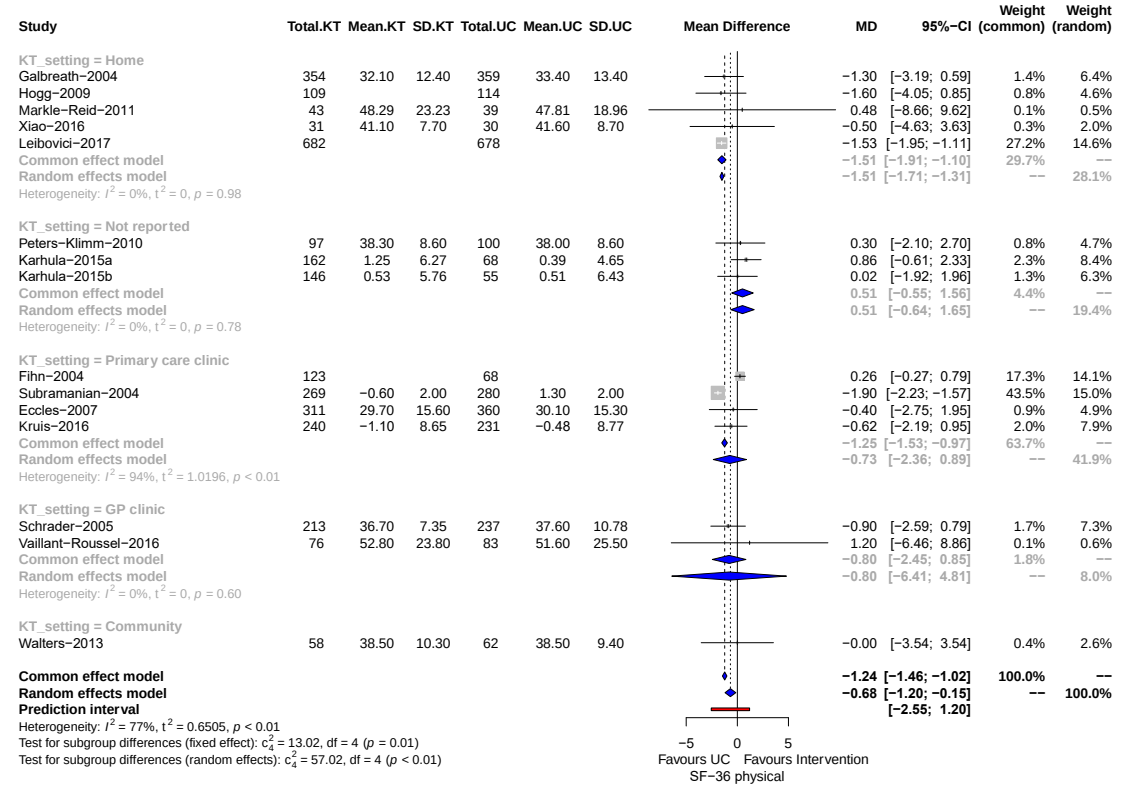
Appendix 17: Subgroup Analyses of All KT Interventions vs Usual Care

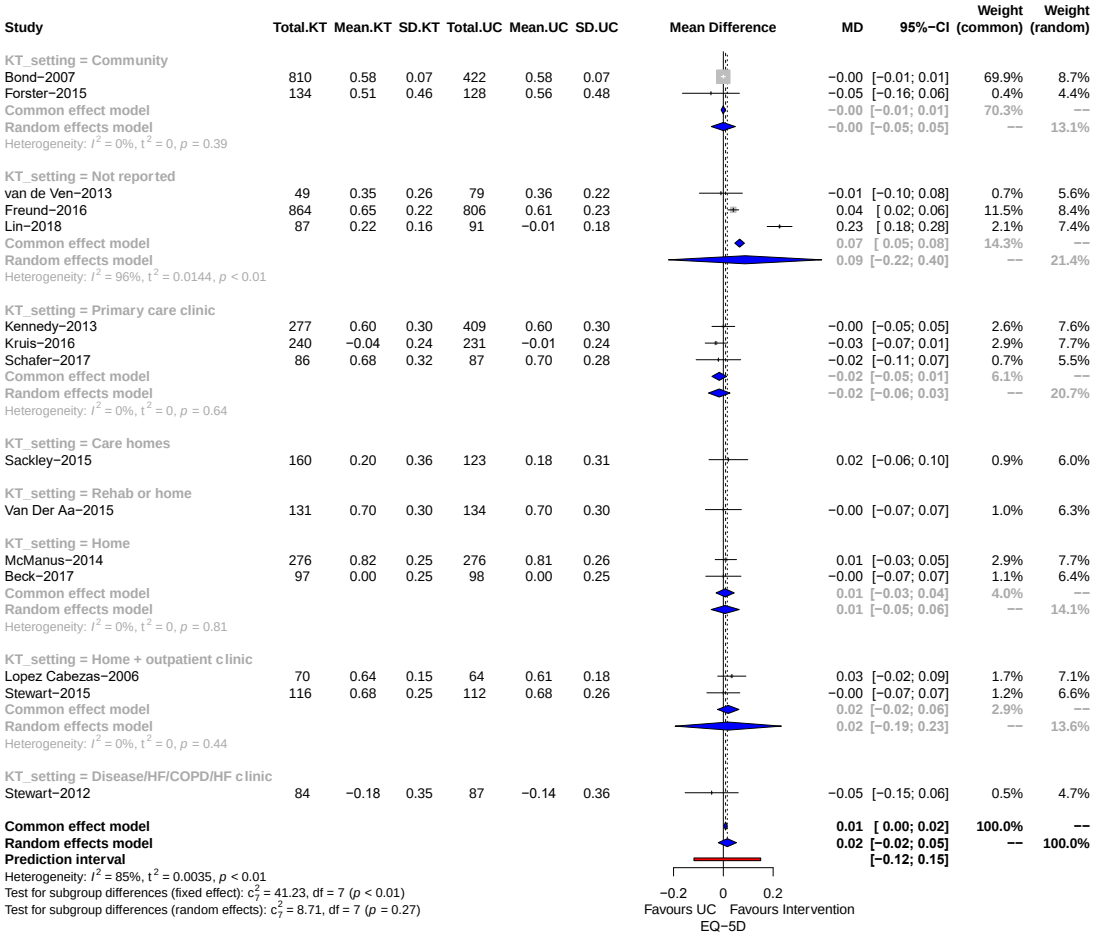
KT setting

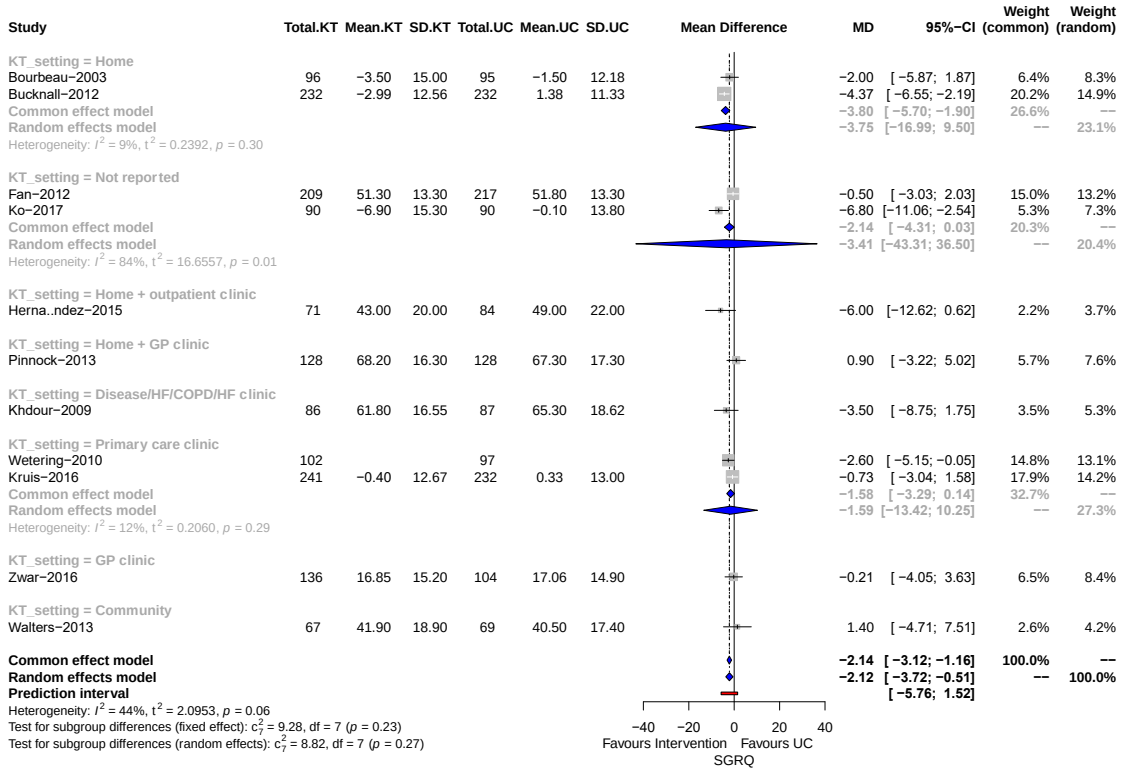


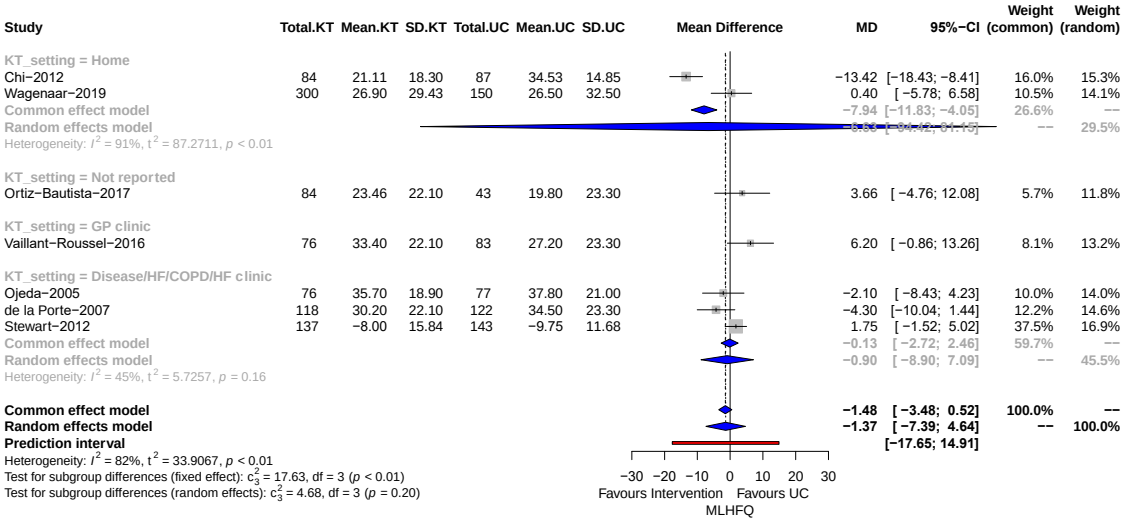


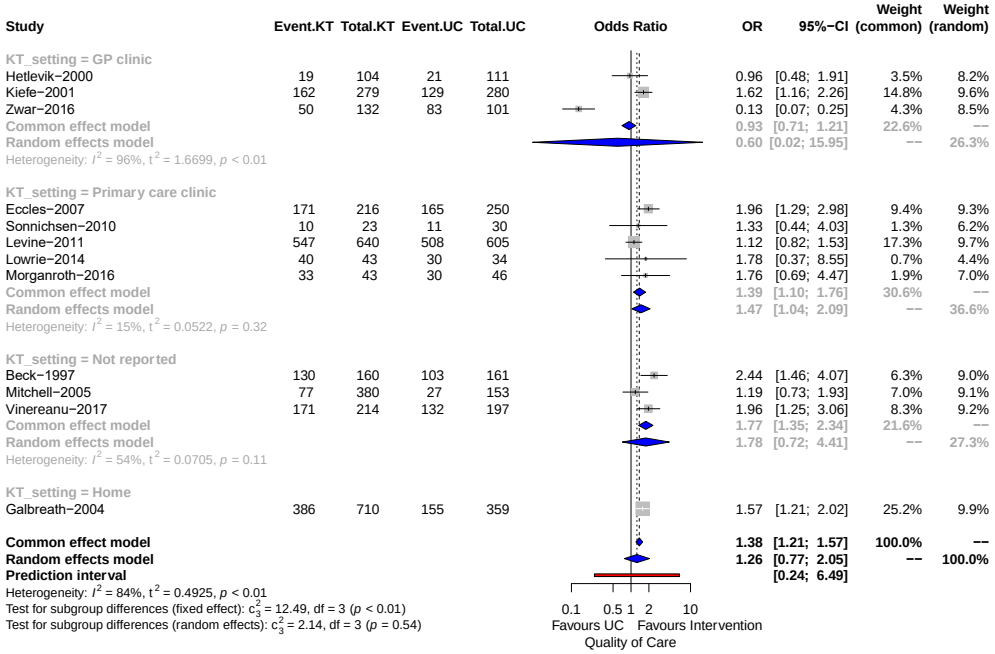

Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
KT_setting = Not reported
Freund−2016 777 36.50 10.60 711 35.50 10.20 1.00 [−0.06; 2.06] 63.4% 20.9%
KT_setting = Home
Bosanquet−2017 249 34.00 13.51 236 35.10 12.11 −1.10 [−3.38; 1.18] 13.6% 20.5%
KT_setting = GP clinic
Murphy−2009 159 40.50 11.10 173 38.80 11.10 1.70 [−0.69; 4.09] 12.4% 20.4%
KT_setting = Home + outpatient clinic
Liu−2008 24 47.90 7.35 24 30.90 10.78 17.00 [11.78; 22.22] 2.6% 18.2%
Stewart−2015 116 38.10 10.80 112 36.60 12.10 1.50 [−1.48; 4.48] 8.0% 20.0%
Common effect model 5.31 [2.72; 7.90] 10.6% −−
Random effects model [illegible] −− 38.2%
Heterogeneity: I^2 = 96%, t^2 = 115.4236, p < 0.01
Common effect model 1.26 [0.42; 2.10] 100.0% −−
Random effects model 3.72 [−5.08; 12.52] −− 100.0%
Prediction interval [−19.63; 27.07]
Heterogeneity: I^2 = 90%, t^2 = 44.4548, p < 0.01
Test for subgroup differences (fixed effect): c^2_3 = 13.89, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c^2_3 = 4.49, df = 3 (p = 0.21)
−30 −20 −10 0 10 20 30
Favours UC
Favours Intervention
SF−12 physical


Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
KT_setting = Home
Galbreath−2004 354 32.10 12.40 359 33.40 13.40 −1.30 [−3.19; 0.59] 1.4% 6.4%
Hogg−2009 109 114 −1.60 [−4.05; 0.85] 0.8% 4.6%
Markle−Reid−2011 43 48.29 23.23 39 47.81 18.96 0.48 [−8.66; 9.62] 0.1% 0.5%
Xiao−2016 31 41.10 7.70 30 41.60 8.70 −0.50 [−4.63; 3.63] 0.3% 2.0%
Leibovici−2017 682 678 −1.53 [−1.95; −1.11] 27.2% 14.6%
Common effect model −1.51 [−1.91; −1.10] 29.7% −−
Random effects model −1.51 [−1.71; −1.31] −− 28.1%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.98
KT_setting = Not reported
Peters−Klimm−2010 97 38.30 8.60 100 38.00 8.60 0.30 [−2.10; 2.70] 0.8% 4.7%
Karhula−2015a 162 1.25 6.27 68 0.39 4.65 0.86 [−0.61; 2.33] 2.3% 8.4%
Karhula−2015b 146 0.53 5.76 55 0.51 6.43 0.02 [−1.92; 1.96] 1.3% 6.3%
Common effect model 0.51 [−0.55; 1.56] 4.4% −−
Random effects model 0.51 [−0.64; 1.65] −− 19.4%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.78
KT_setting = Primary care clinic
Fihn−2004 123 68 0.26 [−0.27; 0.79] 17.3% 14.1%
Subramanian−2004 269 −0.60 2.00 280 1.30 2.00 −1.90 [−2.23; −1.57] 43.5% 15.0%
Eccles−2007 311 29.70 15.60 360 30.10 15.30 −0.40 [−2.75; 1.95] 0.9% 4.9%
Kruis−2016 240 −1.10 8.65 231 −0.48 8.77 −0.62 [−2.19; 0.95] 2.0% 7.9%
Common effect model −1.25 [−1.53; −0.97] 63.7% −−
Random effects model −0.73 [−2.36; 0.89] −− 41.9%
Heterogeneity: I^2 = 94%, t^2 = 1.0196, p < 0.01
KT_setting = GP clinic
Schrader−2005 213 36.70 7.35 237 37.60 10.78 −0.90 [−2.59; 0.79] 1.7% 7.3%
Vaillant−Roussel−2016 76 52.80 23.80 83 51.60 25.50 1.20 [−6.46; 8.86] 0.1% 0.6%
Common effect model −0.80 [−2.45; 0.85] 1.8% −−
Random effects model −0.80 [−6.41; 4.81] −− 8.0%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.60
KT_setting = Community
Walters−2013 58 38.50 10.30 62 38.50 9.40 −0.00 [−3.54; 3.54] 0.4% 2.6%
Common effect model −1.24 [−1.46; −1.02] 100.0% −−
Random effects model −0.68 [−1.20; −0.15] −− 100.0%
Prediction interval [−2.55; 1.20]
Heterogeneity: I^2 = 77%, t^2 = 0.6505, p < 0.01
Test for subgroup differences (fixed effect): c^2_4 = 13.02, df = 4 (p = 0.01)
Test for subgroup differences (random effects): c^2_4 = 57.02, df = 4 (p < 0.01)
−5 0 5
Favours UC
Favours Intervention
SF−36 physical


Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
KT_setting = Community
Bond−2007 810 0.58 0.07 422 0.58 0.07 −0.00 [−0.01; 0.01] 69.9% 8.7%
Forster−2015 134 0.51 0.46 128 0.56 0.48 −0.05 [−0.16; 0.06] 0.4% 4.4%
Common effect model −0.00 [−0.01; 0.01] 70.3% −−
Random effects model −0.00 [−0.05; 0.05] −− 13.1%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.39
KT_setting = Not reported
van de Ven−2013 49 0.35 0.26 79 0.36 0.22 −0.01 [−0.10; 0.08] 0.7% 5.6%
Freund−2016 864 0.65 0.22 806 0.61 0.23 0.04 [0.02; 0.06] 11.5% 8.4%
Lin−2018 87 0.22 0.16 91 −0.01 0.18 0.23 [0.18; 0.28] 2.1% 7.4%
Common effect model 0.07 [0.05; 0.08] 14.3% −−
Random effects model 0.09 [−0.22; 0.40] −− 21.4%
Heterogeneity: I^2 = 96%, t^2 = 0.0144, p < 0.01
KT_setting = Primary care clinic
Kennedy−2013 277 0.60 0.30 409 0.60 0.30 −0.00 [−0.05; 0.05] 2.6% 7.6%
Kruis−2016 240 −0.04 0.24 231 −0.01 0.24 −0.03 [−0.07; 0.01] 2.9% 7.7%
Schafer−2017 86 0.68 0.32 87 0.70 0.28 −0.02 [−0.11; 0.07] 0.7% 5.5%
Common effect model −0.02 [−0.05; 0.01] 6.1% −−
Random effects model −0.02 [−0.06; 0.03] −− 20.7%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.64
KT_setting = Care homes
Sackley−2015 160 0.20 0.36 123 0.18 0.31 0.02 [−0.06; 0.10] 0.9% 6.0%
KT_setting = Rehab or home
Van Der Aa−2015 131 0.70 0.30 134 0.70 0.30 −0.00 [−0.07; 0.07] 1.0% 6.3%
KT_setting = Home
McManus−2014 276 0.82 0.25 276 0.81 0.26 0.01 [−0.03; 0.05] 2.9% 7.7%
Beck−2017 97 0.00 0.25 98 0.00 0.25 −0.00 [−0.07; 0.07] 1.1% 6.4%
Common effect model 0.01 [−0.03; 0.04] 4.0% −−
Random effects model 0.01 [−0.05; 0.06] −− 14.1%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.81
KT_setting = Home + outpatient clinic
Lopez Cabezas−2006 70 0.64 0.15 64 0.61 0.18 0.03 [−0.02; 0.09] 1.7% 7.1%
Stewart−2015 116 0.68 0.25 112 0.68 0.26 −0.00 [−0.07; 0.07] 1.2% 6.6%
Common effect model 0.02 [−0.02; 0.06] 2.9% −−
Random effects model 0.02 [−0.19; 0.23] −− 13.6%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.44
KT_setting = Disease/HF/COPD/HF clinic
Stewart−2012 84 −0.18 0.35 87 −0.14 0.36 −0.05 [−0.15; 0.06] 0.5% 4.7%
Common effect model 0.01 [0.00; 0.02] 100.0% −−
Random effects model 0.02 [−0.02; 0.05] −− 100.0%
Prediction interval [−0.12; 0.15]
Heterogeneity: I^2 = 85%, t^2 = 0.0035, p < 0.01
Test for subgroup differences (fixed effect): c_7^2 = 41.23, df = 7 (p < 0.01)
Test for subgroup differences (random effects): c_7^2 = 8.71, df = 7 (p = 0.27)
−0.2
0
0.2
Favours UC
Favours Intervention
EQ−5D

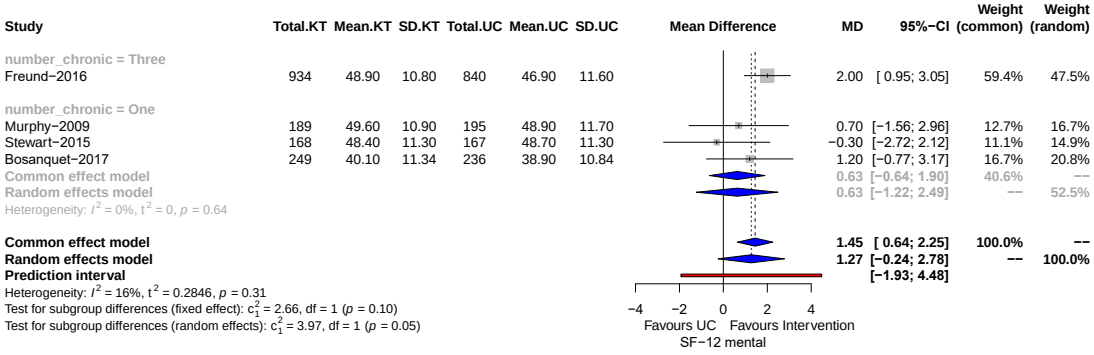

Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
KT_setting = Home
Bourbeau−2003 96 −3.50 15.00 95 −1.50 12.18 −2.00 [−5.87; 1.87] 6.4% 8.3%
Bucknall−2012 232 −2.99 12.56 232 1.38 11.33 −4.37 [−6.55; −2.19] 20.2% 14.9%
Common effect model −3.80 [−5.70; −1.90] 26.6% −−
Random effects model −3.75 [−16.99; 9.50] −− 23.1%
Heterogeneity: I^2 = 9%, t^2 = 0.2392, p = 0.30
KT_setting = Not reported
Fan−2012 209 51.30 13.30 217 51.80 13.30 −0.50 [−3.03; 2.03] 15.0% 13.2%
Ko−2017 90 −6.90 15.30 90 −0.10 13.80 −6.80 [−11.06; −2.54] 5.3% 7.3%
Common effect model −2.14 [−4.31; 0.03] 20.3% −−
Random effects model −3.41 [−43.31; 36.50] −− 20.4%
Heterogeneity: I^2 = 84%, t^2 = 16.6557, p = 0.01
KT_setting = Home + outpatient clinic
Herna..ndez−2015 71 43.00 20.00 84 49.00 22.00 −6.00 [−12.62; 0.62] 2.2% 3.7%
KT_setting = Home + GP clinic
Pinnock−2013 128 68.20 16.30 128 67.30 17.30 0.90 [−3.22; 5.02] 5.7% 7.6%
KT_setting = Disease/HF/COPD/HF clinic
Khdour−2009 86 61.80 16.55 87 65.30 18.62 −3.50 [−8.75; 1.75] 3.5% 5.3%
KT_setting = Primary care clinic
Wetering−2010 102 97 −2.60 [−5.15; −0.05] 14.8% 13.1%
Kruis−2016 241 −0.40 12.67 232 0.33 13.00 −0.73 [−3.04; 1.58] 17.9% 14.2%
Common effect model −1.58 [−3.29; 0.14] 32.7% −−
Random effects model −1.59 [−13.42; 10.25] −− 27.3%
Heterogeneity: I^2 = 12%, t^2 = 0.2060, p = 0.29
KT_setting = GP clinic
Zwar−2016 136 16.85 15.20 104 17.06 14.90 −0.21 [−4.05; 3.63] 6.5% 8.4%
KT_setting = Community
Walters−2013 67 41.90 18.90 69 40.50 17.40 1.40 [−4.71; 7.51] 2.6% 4.2%
Common effect model −2.14 [−3.12; −1.16] 100.0% −−
Random effects model −2.12 [−3.72; −0.51] −− 100.0%
Prediction interval [−5.76; 1.52]
Heterogeneity: I^2 = 44%, t^2 = 2.0953, p = 0.06
Test for subgroup differences (fixed effect): c_7^2 = 9.28, df = 7 (p = 0.23)
Test for subgroup differences (random effects): c_7^2 = 8.82, df = 7 (p = 0.27)
−40 −20 0 20 40
Favours Intervention
Favours UC
SGRQ

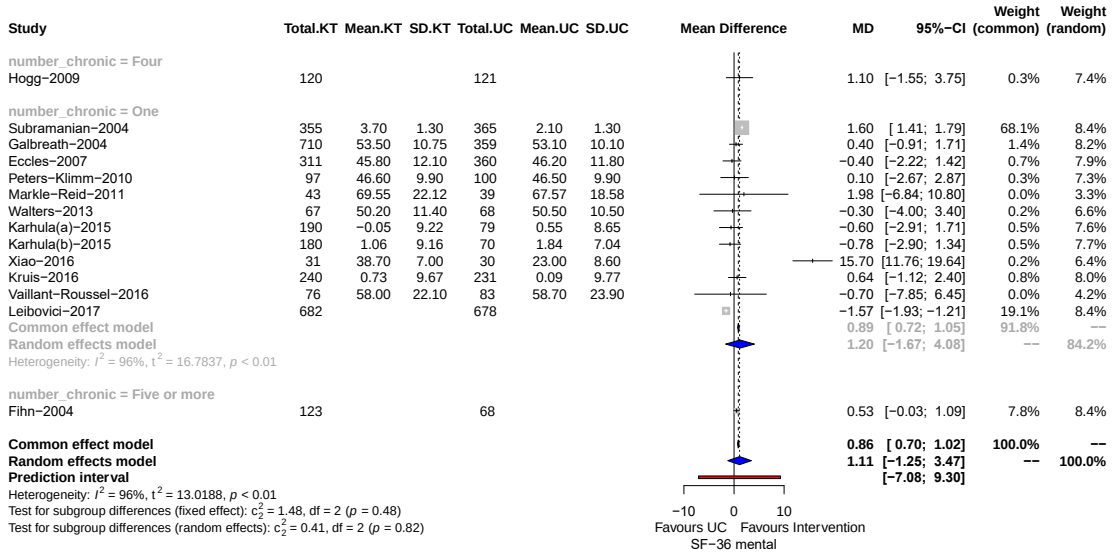

Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
KT_setting = Home
Chi−2012 84 21.11 18.30 87 34.53 14.85 −13.42 [−18.43; −8.41] 16.0% 15.3%
Wagenaar−2019 300 26.90 29.43 150 26.50 32.50 0.40 [−5.78; 6.58] 10.5% 14.1%
Common effect model −7.94 [−11.83; −4.05] 26.6% −−
Random effects model [illegible] −− 29.5%
Heterogeneity: I^2 = 91%, t^2 = 87.2711, p < 0.01
KT_setting = Not reported
Ortiz−Bautista−2017 84 23.46 22.10 43 19.80 23.30 3.66 [−4.76; 12.08] 5.7% 11.8%
KT_setting = GP clinic
Vaillant−Roussel−2016 76 33.40 22.10 83 27.20 23.30 6.20 [−0.86; 13.26] 8.1% 13.2%
KT_setting = Disease/HF/COPD/HF clinic
Ojeda−2005 76 35.70 18.90 77 37.80 21.00 −2.10 [−8.43; 4.23] 10.0% 14.0%
de la Porte−2007 118 30.20 22.10 122 34.50 23.30 −4.30 [−10.04; 1.44] 12.2% 14.6%
Stewart−2012 137 −8.00 15.84 143 −9.75 11.68 1.75 [−1.52; 5.02] 37.5% 16.9%
Common effect model −0.13 [−2.72; 2.46] 59.7% −−
Random effects model −0.90 [−8.90; 7.09] −− 45.5%
Heterogeneity: I^2 = 45%, t^2 = 5.7257, p = 0.16
Common effect model −1.48 [−3.48; 0.52] 100.0% −−
Random effects model −1.37 [−7.39; 4.64] −− 100.0%
Prediction interval [−17.65; 14.91]
Heterogeneity: I^2 = 82%, t^2 = 33.9067, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 17.63, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 4.68, df = 3 (p = 0.20)
−30 −20 −10 0 10 20 30
Favours Intervention
Favours UC
MLHFQ

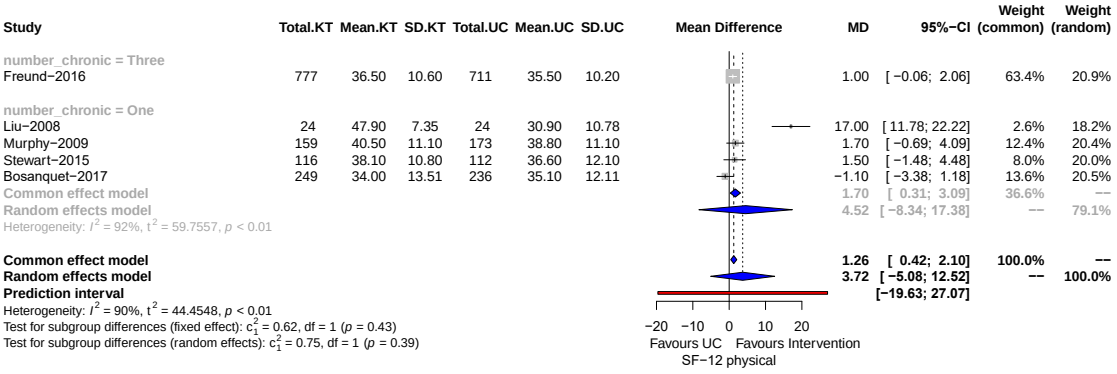


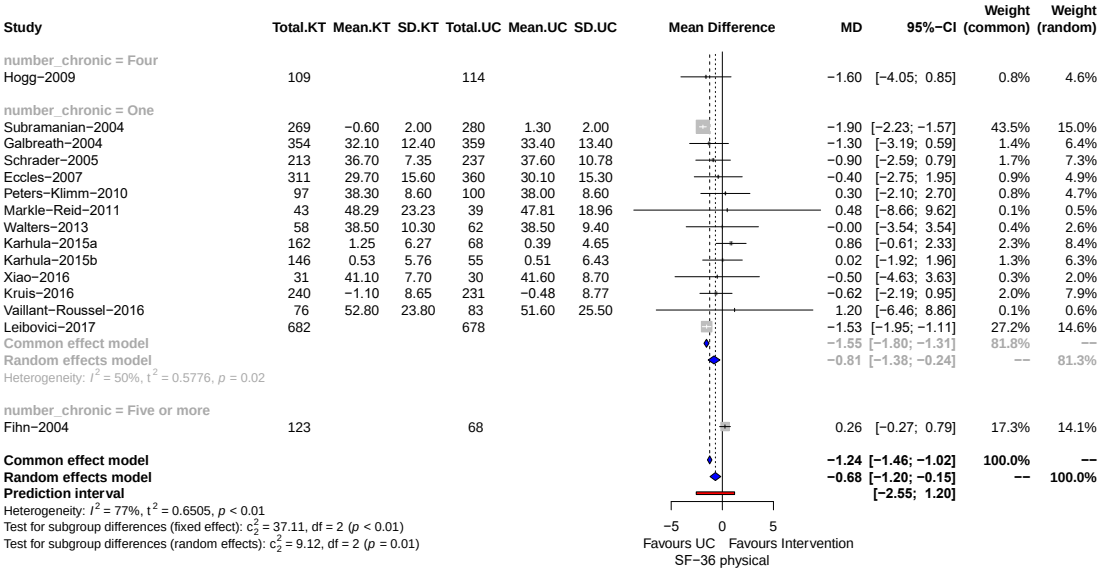
Number of chronic diseases

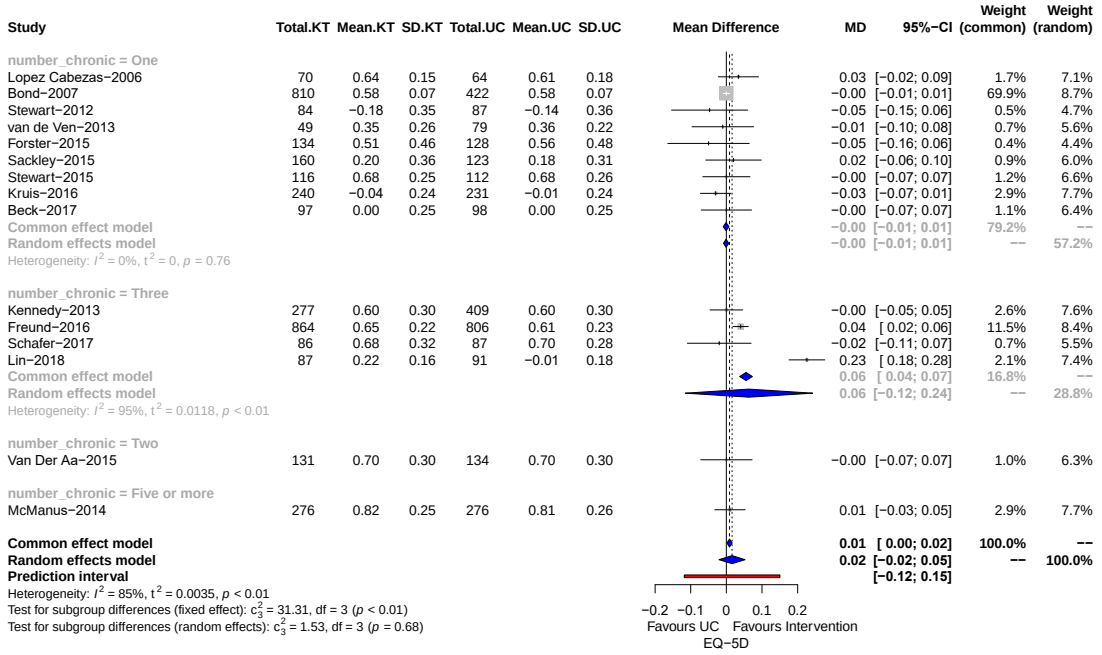
* Defined as the primary condition that is being treated/managed in the trial (e.g., hypertension).

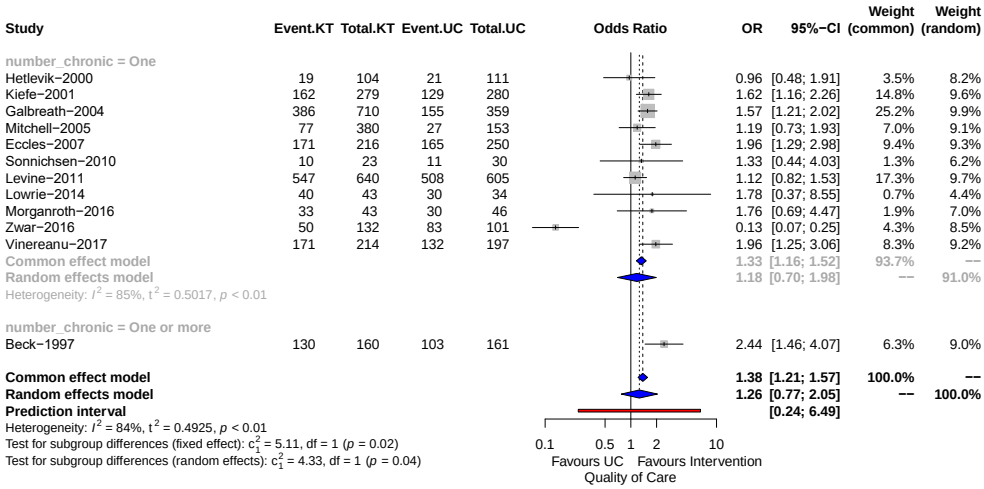



Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
number_chronic = Four
Hogg−2009 120 121 1.10 [−1.55; 3.75] 0.3% 7.4%
number_chronic = One
Subramanian−2004 355 3.70 1.30 365 2.10 1.30 1.60 [1.41; 1.79] 68.1% 8.4%
Galbreath−2004 710 53.50 10.75 359 53.10 10.10 0.40 [−0.91; 1.71] 1.4% 8.2%
Eccles−2007 311 45.80 12.10 360 46.20 11.80 −0.40 [−2.22; 1.42] 0.7% 7.9%
Peters−Klimm−2010 97 46.60 9.90 100 46.50 9.90 0.10 [−2.67; 2.87] 0.3% 7.3%
Markle−Reid−2011 43 69.55 22.12 39 67.57 18.58 1.98 [−6.84; 10.80] 0.0% 3.3%
Walters−2013 67 50.20 11.40 68 50.50 10.50 −0.30 [−4.00; 3.40] 0.2% 6.6%
Karhula(a)−2015 190 −0.05 9.22 79 0.55 8.65 −0.60 [−2.91; 1.71] 0.5% 7.6%
Karhula(b)−2015 180 1.06 9.16 70 1.84 7.04 −0.78 [−2.90; 1.34] 0.5% 7.7%
Xiao−2016 31 38.70 7.00 30 23.00 8.60 15.70 [11.76; 19.64] 0.2% 6.4%
Kruis−2016 240 0.73 9.67 231 0.09 9.77 0.64 [−1.12; 2.40] 0.8% 8.0%
Vaillant−Roussel−2016 76 58.00 22.10 83 58.70 23.90 −0.70 [−7.85; 6.45] 0.0% 4.2%
Leibovici−2017 682 678 −1.57 [−1.93; −1.21] 19.1% 8.4%
Common effect model 0.89 [0.72; 1.05] 91.8% --
Random effects model 1.20 [−1.67; 4.08] -- 84.2%
Heterogeneity: I^2 = 96%, t^2 = 16.7837, p < 0.01
number_chronic = Five or more
Fihn−2004 123 68 0.53 [−0.03; 1.09] 7.8% 8.4%
Common effect model 0.86 [0.70; 1.02] 100.0% --
Random effects model 1.11 [−1.25; 3.47] -- 100.0%
Prediction interval [−7.08; 9.30]
Heterogeneity: I^2 = 96%, t^2 = 13.0188, p < 0.01
Test for subgroup differences (fixed effect): c_2^2 = 1.48, df = 2 (p = 0.48)
Test for subgroup differences (random effects): c_2^2 = 0.41, df = 2 (p = 0.82)
−10 0 10
Favours UC Favours Intervention
SF−36 mental


Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
number_chronic = Three
Freund−2016 777 36.50 10.60 711 35.50 10.20 1.00 [−0.06; 2.06] 63.4% 20.9%
number_chronic = One
Liu−2008 24 47.90 7.35 24 30.90 10.78 17.00 [11.78; 22.22] 2.6% 18.2%
Murphy−2009 159 40.50 11.10 173 38.80 11.10 1.70 [−0.69; 4.09] 12.4% 20.4%
Stewart−2015 116 38.10 10.80 112 36.60 12.10 1.50 [−1.48; 4.48] 8.0% 20.0%
Bosanquet−2017 249 34.00 13.51 236 35.10 12.11 −1.10 [−3.38; 1.18] 13.6% 20.5%
Common effect model 1.70 [0.31; 3.09] 36.6% --
Random effects model 4.52 [−8.34; 17.38] -- 79.1%
Heterogeneity: I^2 = 92%, t^2 = 59.7557, p < 0.01
Common effect model 1.26 [0.42; 2.10] 100.0% --
Random effects model 3.72 [−5.08; 12.52] -- 100.0%
Prediction interval [−19.63; 27.07]
Heterogeneity: I^2 = 90%, t^2 = 44.4548, p < 0.01
Test for subgroup differences (fixed effect): c_1^2 = 0.62, df = 1 (p = 0.43)
Test for subgroup differences (random effects): c_1^2 = 0.75, df = 1 (p = 0.39)
−20 −10 0 10 20
Favours UC Favours Intervention
SF−12 physical

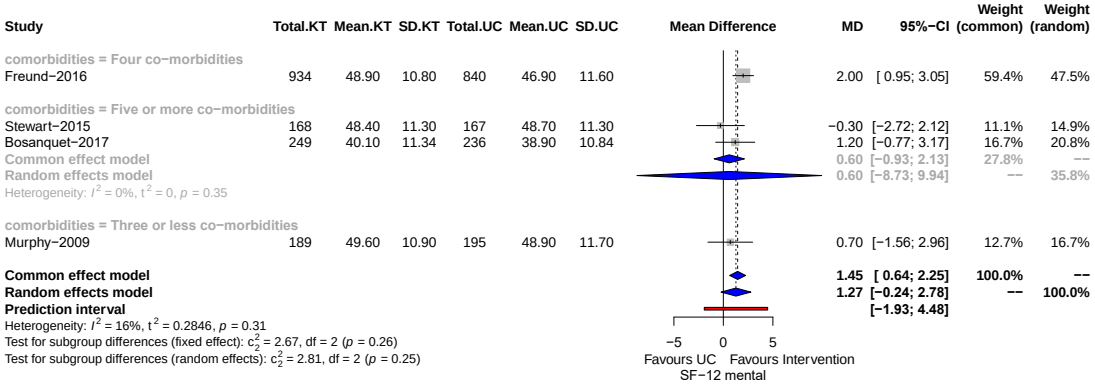

Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
number_chronic = Four
Hogg−2009 109 114 −1.60 [−4.05; 0.85] 0.8% 4.6%
number_chronic = One
Subramanian−2004 269 −0.60 2.00 280 1.30 2.00 −1.90 [−2.23; −1.57] 43.5% 15.0%
Galbreath−2004 354 32.10 12.40 359 33.40 13.40 −1.30 [−3.19; 0.59] 1.4% 6.4%
Schrader−2005 213 36.70 7.35 237 37.60 10.78 −0.90 [−2.59; 0.79] 1.7% 7.3%
Eccles−2007 311 29.70 15.60 360 30.10 15.30 −0.40 [−2.75; 1.95] 0.9% 4.9%
Peters−Klimm−2010 97 38.30 8.60 100 38.00 8.60 0.30 [−2.10; 2.70] 0.8% 4.7%
Markle−Reid−2011 43 48.29 23.23 39 47.81 18.96 0.48 [−8.66; 9.62] 0.1% 0.5%
Walters−2013 58 38.50 10.30 62 38.50 9.40 −0.00 [−3.54; 3.54] 0.4% 2.6%
Karhula−2015a 162 1.25 6.27 68 0.39 4.65 0.86 [−0.61; 2.33] 2.3% 8.4%
Karhula−2015b 146 0.53 5.76 55 0.51 6.43 0.02 [−1.92; 1.96] 1.3% 6.3%
Xiao−2016 31 41.10 7.70 30 41.60 8.70 −0.50 [−4.63; 3.63] 0.3% 2.0%
Kruis−2016 240 −1.10 8.65 231 −0.48 8.77 −0.62 [−2.19; 0.95] 2.0% 7.9%
Vaillant−Roussel−2016 76 52.80 23.80 83 51.60 25.50 1.20 [−6.46; 8.86] 0.1% 0.6%
Leibovici−2017 682 678 −1.53 [−1.95; −1.11] 27.2% 14.6%
Common effect model −1.55 [−1.80; −1.31] 81.8% −−
Random effects model −0.81 [−1.38; −0.24] −− 81.3%
Heterogeneity: I^2 = 50%, t^2 = 0.5776, p = 0.02
number_chronic = Five or more
Fihn−2004 123 68 0.26 [−0.27; 0.79] 17.3% 14.1%
Common effect model −1.24 [−1.46; −1.02] 100.0% −−
Random effects model −0.68 [−1.20; −0.15] −− 100.0%
Prediction interval [−2.55; 1.20]
Heterogeneity: I^2 = 77%, t^2 = 0.6505, p < 0.01
Test for subgroup differences (fixed effect): c_2^2 = 37.11, df = 2 (p < 0.01)
Test for subgroup differences (random effects): c_2^2 = 9.12, df = 2 (p = 0.01)
−5
0
5
Favours UC
Favours Intervention
SF−36 physical

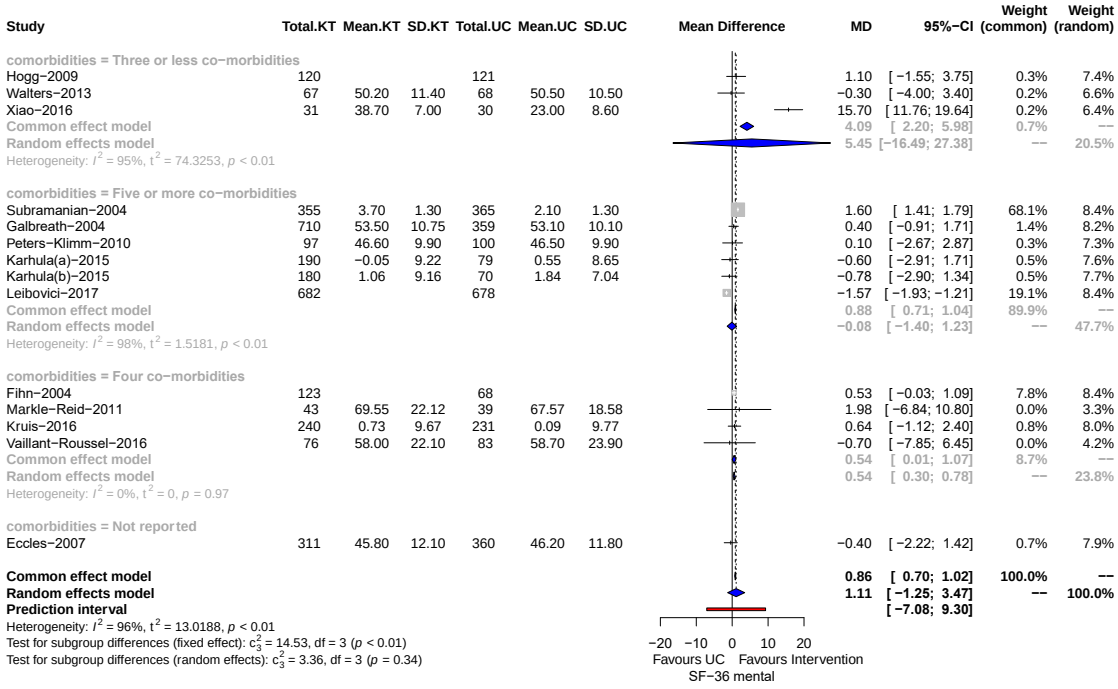

Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
number_chronic = One
Lopez Cabezas−2006 70 0.64 0.15 64 0.61 0.18 0.03 [−0.02; 0.09] 1.7% 7.1%
Bond−2007 810 0.58 0.07 422 0.58 0.07 −0.00 [−0.01; 0.01] 69.9% 8.7%
Stewart−2012 84 −0.18 0.35 87 −0.14 0.36 −0.05 [−0.15; 0.06] 0.5% 4.7%
van de Ven−2013 49 0.35 0.26 79 0.36 0.22 −0.01 [−0.10; 0.08] 0.7% 5.6%
Forster−2015 134 0.51 0.46 128 0.56 0.48 −0.05 [−0.16; 0.06] 0.4% 4.4%
Sackley−2015 160 0.20 0.36 123 0.18 0.31 0.02 [−0.06; 0.10] 0.9% 6.0%
Stewart−2015 116 0.68 0.25 112 0.68 0.26 −0.00 [−0.07; 0.07] 1.2% 6.6%
Kruis−2016 240 −0.04 0.24 231 −0.01 0.24 −0.03 [−0.07; 0.01] 2.9% 7.7%
Beck−2017 97 0.00 0.25 98 0.00 0.25 −0.00 [−0.07; 0.07] 1.1% 6.4%
Common effect model −0.00 [−0.01; 0.01] 79.2% −−
Random effects model −0.00 [−0.01; 0.01] −− 57.2%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.76
number_chronic = Three
Kennedy−2013 277 0.60 0.30 409 0.60 0.30 −0.00 [−0.05; 0.05] 2.6% 7.6%
Freund−2016 864 0.65 0.22 806 0.61 0.23 0.04 [0.02; 0.06] 11.5% 8.4%
Schafer−2017 86 0.68 0.32 87 0.70 0.28 −0.02 [−0.11; 0.07] 0.7% 5.5%
Lin−2018 87 0.22 0.16 91 −0.01 0.18 0.23 [0.18; 0.28] 2.1% 7.4%
Common effect model 0.06 [0.04; 0.07] 16.8% −−
Random effects model 0.06 [−0.12; 0.24] −− 28.8%
Heterogeneity: I^2 = 95%, t^2 = 0.0118, p < 0.01
number_chronic = Two
Van Der Aa−2015 131 0.70 0.30 134 0.70 0.30 −0.00 [−0.07; 0.07] 1.0% 6.3%
number_chronic = Five or more
McManus−2014 276 0.82 0.25 276 0.81 0.26 0.01 [−0.03; 0.05] 2.9% 7.7%
Common effect model 0.01 [0.00; 0.02] 100.0% −−
Random effects model 0.02 [−0.02; 0.05] −− 100.0%
Prediction interval [−0.12; 0.15]
Heterogeneity: I^2 = 85%, t^2 = 0.0035, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 31.31, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 1.53, df = 3 (p = 0.68)
−0.2
−0.1
0
0.1
0.2
Favours UC
Favours Intervention
EQ−5D

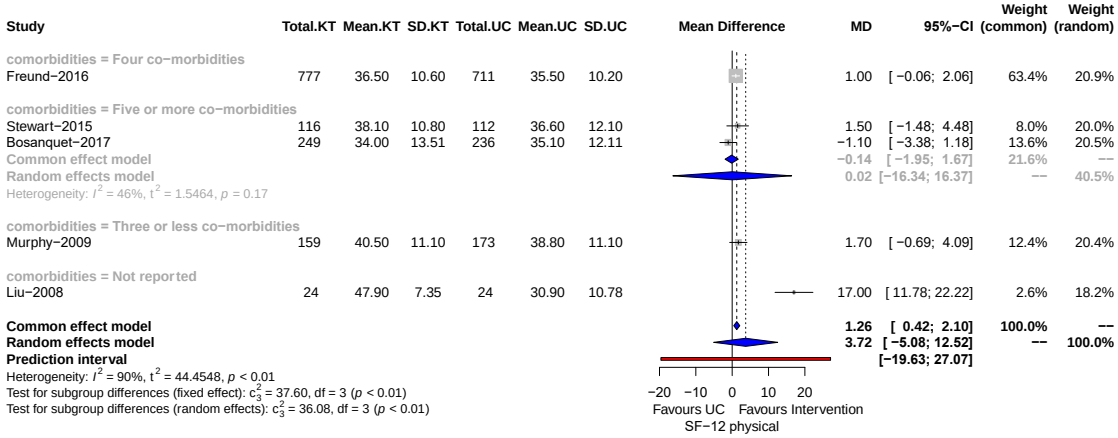


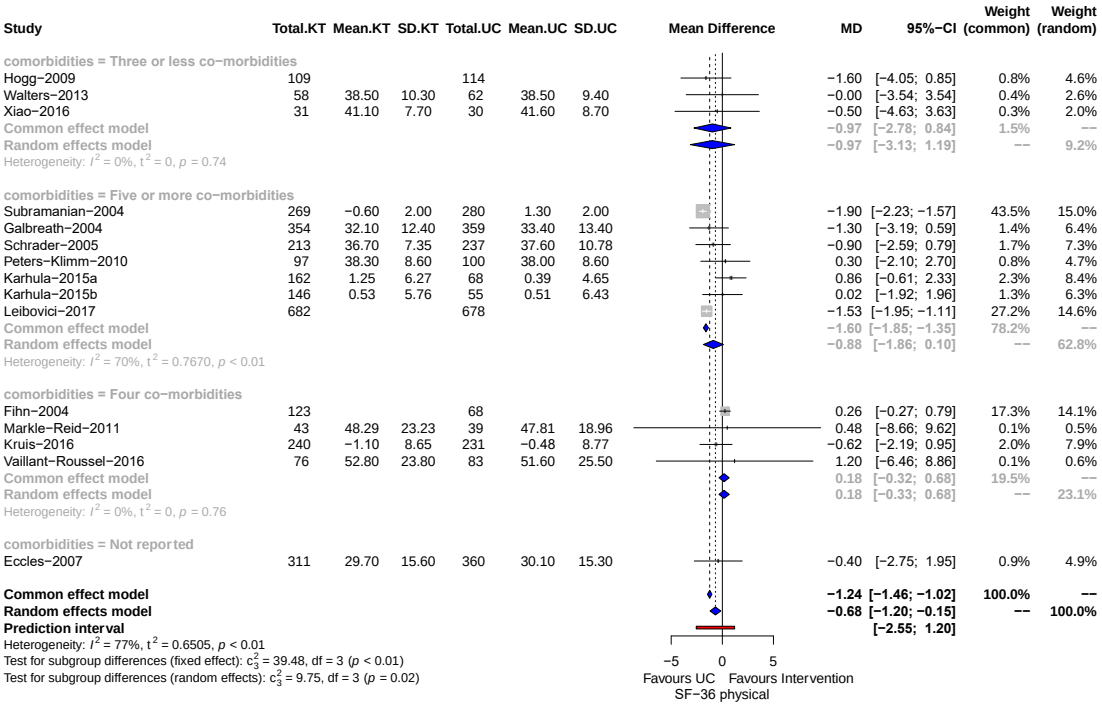
Comorbidities

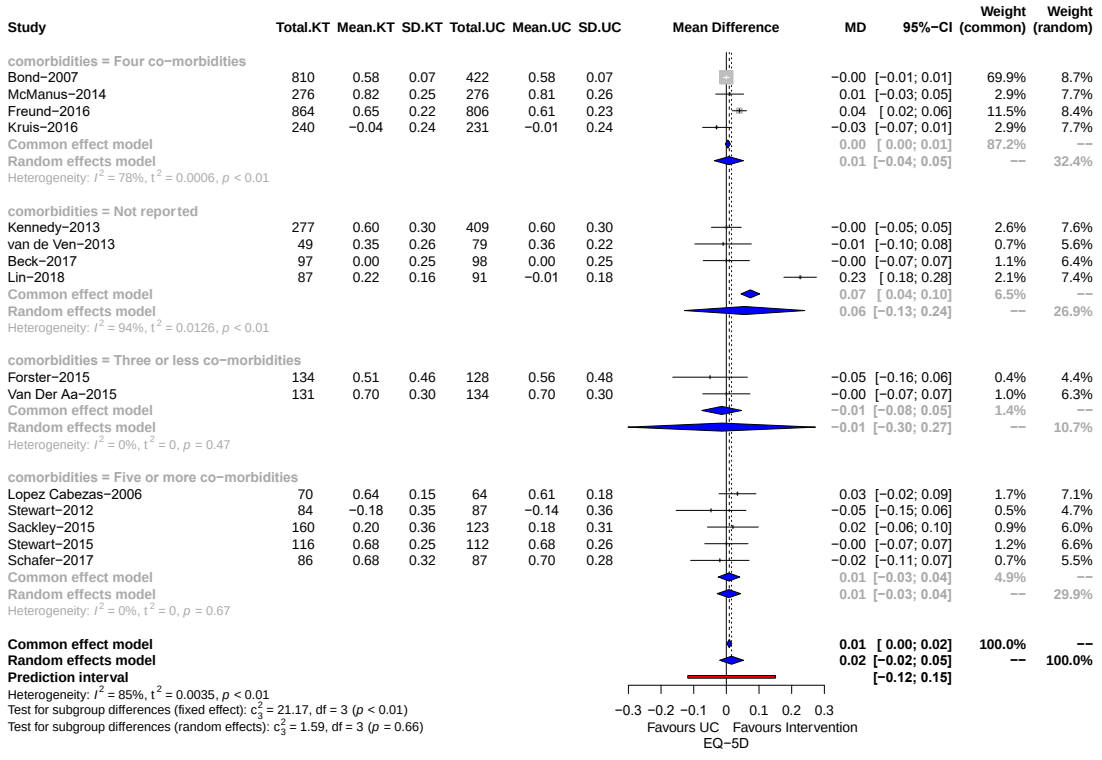
Comorbidities are additional diseases existed or occurred during the study that the individuals had besides the primary chronic disease.[186, 187]

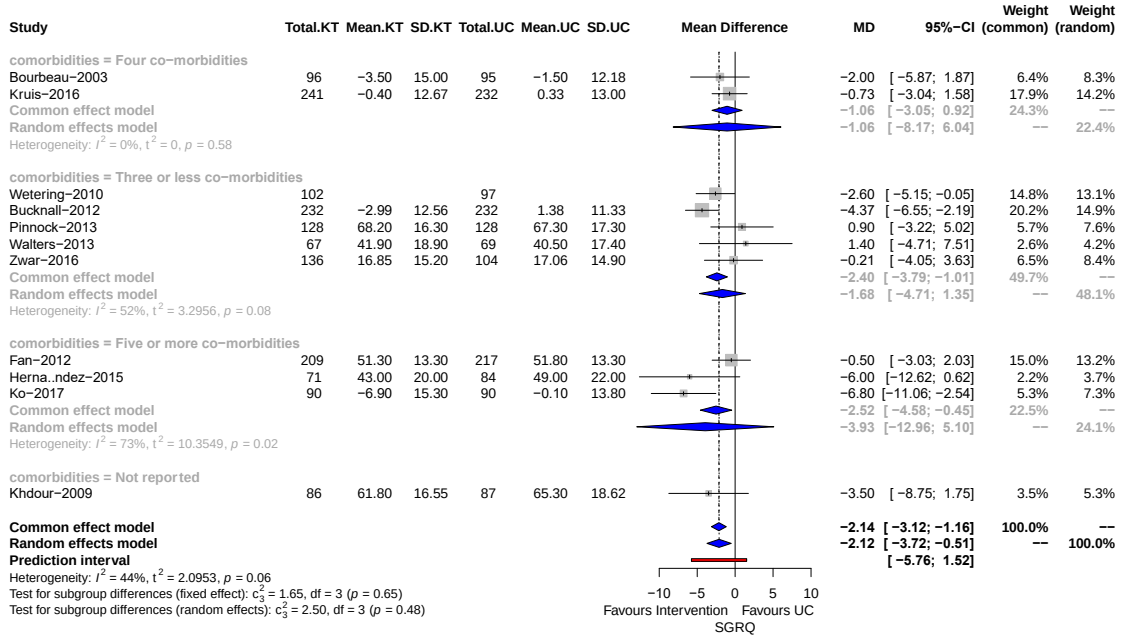


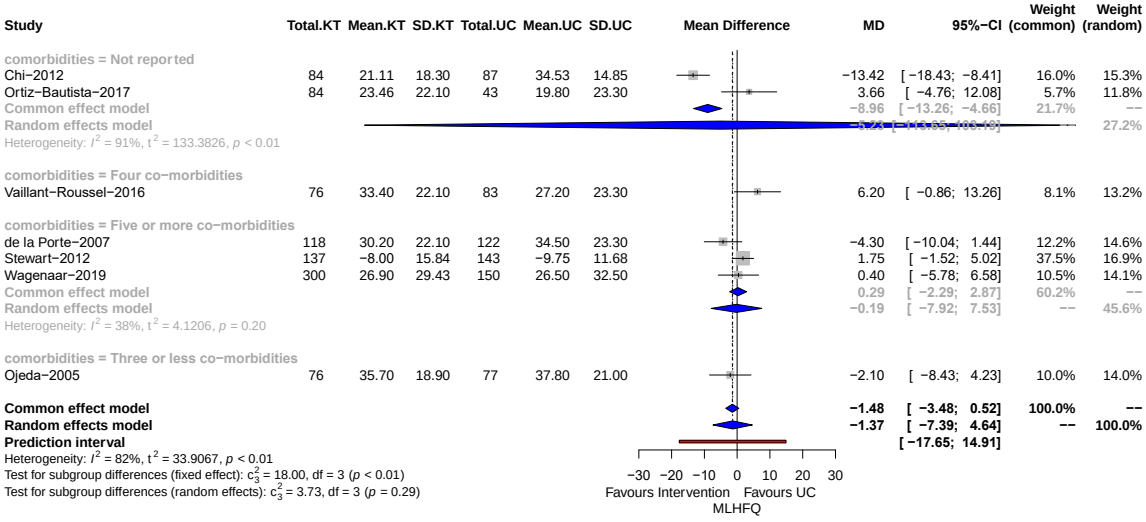

Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
comorbidities = Three or less co−morbidities
Hogg−2009 120 121 1.10 [−1.55; 3.75] 0.3% 7.4%
Walters−2013 67 50.20 11.40 68 50.50 10.50 −0.30 [−4.00; 3.40] 0.2% 6.6%
Xiao−2016 31 38.70 7.00 30 23.00 8.60 15.70 [11.76; 19.64] 0.2% 6.4%
Common effect model 4.09 [2.20; 5.98] 0.7% --
Random effects model 5.45 [−16.49; 27.38] -- 20.5%
Heterogeneity: I^2 = 95%, t^2 = 74.3253, p < 0.01
comorbidities = Five or more co−morbidities
Subramanian−2004 355 3.70 1.30 365 2.10 1.30 1.60 [1.41; 1.79] 68.1% 8.4%
Galbreath−2004 710 53.50 10.75 359 53.10 10.10 0.40 [−0.91; 1.71] 1.4% 8.2%
Peters−Klimm−2010 97 46.60 9.90 100 46.50 9.90 0.10 [−2.67; 2.87] 0.3% 7.3%
Karhula(a)−2015 190 −0.05 9.22 79 0.55 8.65 −0.60 [−2.91; 1.71] 0.5% 7.6%
Karhula(b)−2015 180 1.06 9.16 70 1.84 7.04 −0.78 [−2.90; 1.34] 0.5% 7.7%
Leibovici−2017 682 678 −1.57 [−1.93; −1.21] 19.1% 8.4%
Common effect model 0.88 [0.71; 1.04] 89.9% --
Random effects model −0.08 [−1.40; 1.23] -- 47.7%
Heterogeneity: I^2 = 98%, t^2 = 1.5181, p < 0.01
comorbidities = Four co−morbidities
Fihn−2004 123 68 0.53 [−0.03; 1.09] 7.8% 8.4%
Markle−Reid−2011 43 69.55 22.12 39 67.57 18.58 1.98 [−6.84; 10.80] 0.0% 3.3%
Kruis−2016 240 0.73 9.67 231 0.09 9.77 0.64 [−1.12; 2.40] 0.8% 8.0%
Vaillant−Roussel−2016 76 58.00 22.10 83 58.70 23.90 −0.70 [−7.85; 6.45] 0.0% 4.2%
Common effect model 0.54 [0.01; 1.07] 8.7% --
Random effects model 0.54 [0.30; 0.78] -- 23.8%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.97
comorbidities = Not reported
Eccles−2007 311 45.80 12.10 360 46.20 11.80 −0.40 [−2.22; 1.42] 0.7% 7.9%
Common effect model 0.86 [0.70; 1.02] 100.0% --
Random effects model 1.11 [−1.25; 3.47] -- 100.0%
Prediction interval [−7.08; 9.30]
Heterogeneity: I^2 = 96%, t^2 = 13.0188, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 14.53, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 3.36, df = 3 (p = 0.34)
−20 −10 0 10 20
Favours UC
Favours Intervention
SF−36 mental

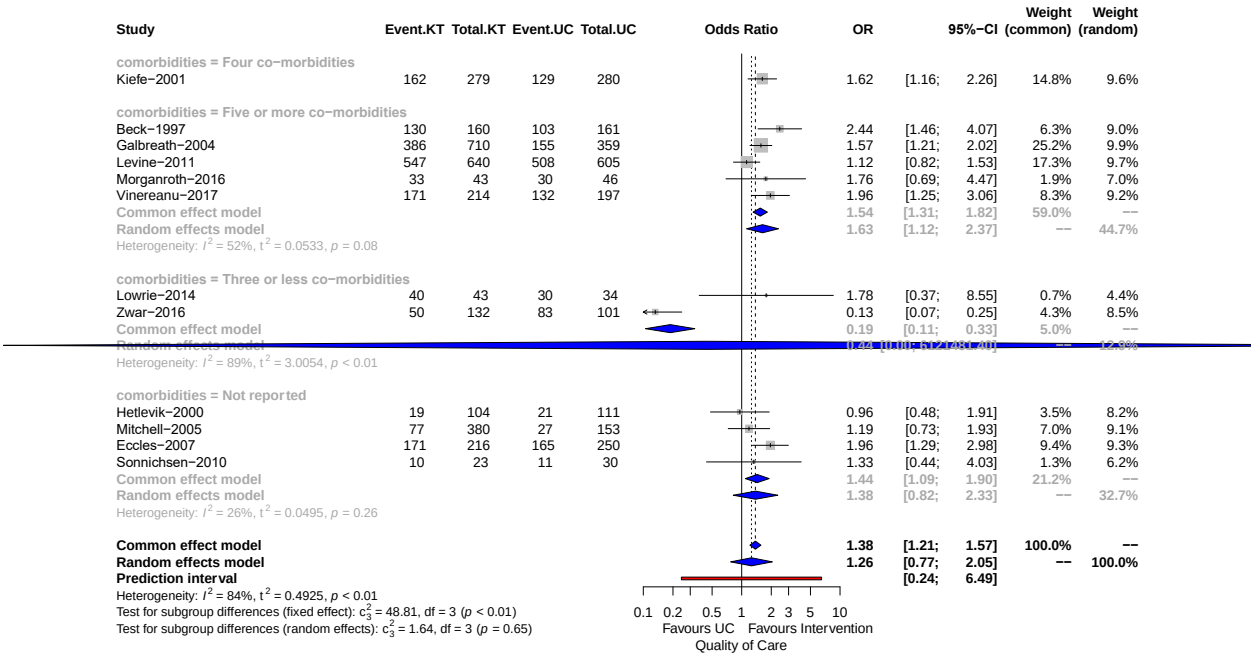

Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
comorbidities = Four co−morbidities
Freund−2016 777 36.50 10.60 711 35.50 10.20 1.00 [−0.06; 2.06] 63.4% 20.9%
comorbidities = Five or more co−morbidities
Stewart−2015 116 38.10 10.80 112 36.60 12.10 1.50 [−1.48; 4.48] 8.0% 20.0%
Bosanquet−2017 249 34.00 13.51 236 35.10 12.11 −1.10 [−3.38; 1.18] 13.6% 20.5%
Common effect model −0.14 [−1.95; 1.67] 21.6% --
Random effects model 0.02 [−16.34; 16.37] -- 40.5%
Heterogeneity: I^2 = 46%, t^2 = 1.5464, p = 0.17
comorbidities = Three or less co−morbidities
Murphy−2009 159 40.50 11.10 173 38.80 11.10 1.70 [−0.69; 4.09] 12.4% 20.4%
comorbidities = Not reported
Liu−2008 24 47.90 7.35 24 30.90 10.78 17.00 [11.78; 22.22] 2.6% 18.2%
Common effect model 1.26 [0.42; 2.10] 100.0% --
Random effects model 3.72 [−5.08; 12.52] -- 100.0%
Prediction interval [−19.63; 27.07]
Heterogeneity: I^2 = 90%, t^2 = 44.4548, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 37.60, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 36.08, df = 3 (p < 0.01)
−20 −10 0 10 20
Favours UC
Favours Intervention
SF−12 physical


Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
comorbidities = Three or less co−morbidities
Hogg−2009 109 114 −1.60 [−4.05; 0.85] 0.8% 4.6%
Walters−2013 58 38.50 10.30 62 38.50 9.40 −0.00 [−3.54; 3.54] 0.4% 2.6%
Xiao−2016 31 41.10 7.70 30 41.60 8.70 −0.50 [−4.63; 3.63] 0.3% 2.0%
Common effect model −0.97 [−2.78; 0.84] 1.5% −−
Random effects model −0.97 [−3.13; 1.19] −− 9.2%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.74
comorbidities = Five or more co−morbidities
Subramanian−2004 269 −0.60 2.00 280 1.30 2.00 −1.90 [−2.23; −1.57] 43.5% 15.0%
Galbreath−2004 354 32.10 12.40 359 33.40 13.40 −1.30 [−3.19; 0.59] 1.4% 6.4%
Schrader−2005 213 36.70 7.35 237 37.60 10.78 −0.90 [−2.59; 0.79] 1.7% 7.3%
Peters−Klimm−2010 97 38.30 8.60 100 38.00 8.60 0.30 [−2.10; 2.70] 0.8% 4.7%
Karhula−2015a 162 1.25 6.27 68 0.39 4.65 0.86 [−0.61; 2.33] 2.3% 8.4%
Karhula−2015b 146 0.53 5.76 55 0.51 6.43 0.02 [−1.92; 1.96] 1.3% 6.3%
Leibovici−2017 682 678 −1.53 [−1.95; −1.11] 27.2% 14.6%
Common effect model −1.60 [−1.85; −1.35] 78.2% −−
Random effects model −0.88 [−1.86; 0.10] −− 62.8%
Heterogeneity: I^2 = 70%, t^2 = 0.7670, p < 0.01
comorbidities = Four co−morbidities
Fihn−2004 123 68 0.26 [−0.27; 0.79] 17.3% 14.1%
Markle−Reid−2011 43 48.29 23.23 39 47.81 18.96 0.48 [−8.66; 9.62] 0.1% 0.5%
Kruis−2016 240 −1.10 8.65 231 −0.48 8.77 −0.62 [−2.19; 0.95] 2.0% 7.9%
Vaillant−Roussel−2016 76 52.80 23.80 83 51.60 25.50 1.20 [−6.46; 8.86] 0.1% 0.6%
Common effect model 0.18 [−0.32; 0.68] 19.5% −−
Random effects model 0.18 [−0.33; 0.68] −− 23.1%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.76
comorbidities = Not reported
Eccles−2007 311 29.70 15.60 360 30.10 15.30 −0.40 [−2.75; 1.95] 0.9% 4.9%
Common effect model −1.24 [−1.46; −1.02] 100.0% −−
Random effects model −0.68 [−1.20; −0.15] −− 100.0%
Prediction interval [−2.55; 1.20]
Heterogeneity: I^2 = 77%, t^2 = 0.6505, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 39.48, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 9.75, df = 3 (p = 0.02)
−5 0 5
Favours UC Favours Intervention
SF−36 physical


Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
comorbidities = Four co−morbidities
Bond−2007 810 0.58 0.07 422 0.58 0.07 −0.00 [−0.01; 0.01] 69.9% 8.7%
McManus−2014 276 0.82 0.25 276 0.81 0.26 0.01 [−0.03; 0.05] 2.9% 7.7%
Freund−2016 864 0.65 0.22 806 0.61 0.23 0.04 [0.02; 0.06] 11.5% 8.4%
Kruis−2016 240 −0.04 0.24 231 −0.01 0.24 −0.03 [−0.07; 0.01] 2.9% 7.7%
Common effect model 0.00 [0.00; 0.01] 87.2% −−
Random effects model 0.01 [−0.04; 0.05] −− 32.4%
Heterogeneity: I^2 = 78%, t^2 = 0.0006, p < 0.01
comorbidities = Not reported
Kennedy−2013 277 0.60 0.30 409 0.60 0.30 −0.00 [−0.05; 0.05] 2.6% 7.6%
van de Ven−2013 49 0.35 0.26 79 0.36 0.22 −0.01 [−0.10; 0.08] 0.7% 5.6%
Beck−2017 97 0.00 0.25 98 0.00 0.25 −0.00 [−0.07; 0.07] 1.1% 6.4%
Lin−2018 87 0.22 0.16 91 −0.01 0.18 0.23 [0.18; 0.28] 2.1% 7.4%
Common effect model 0.07 [0.04; 0.10] 6.5% −−
Random effects model 0.06 [−0.13; 0.24] −− 26.9%
Heterogeneity: I^2 = 94%, t^2 = 0.0126, p < 0.01
comorbidities = Three or less co−morbidities
Forster−2015 134 0.51 0.46 128 0.56 0.48 −0.05 [−0.16; 0.06] 0.4% 4.4%
Van Der Aa−2015 131 0.70 0.30 134 0.70 0.30 −0.00 [−0.07; 0.07] 1.0% 6.3%
Common effect model −0.01 [−0.08; 0.05] 1.4% −−
Random effects model −0.01 [−0.30; 0.27] −− 10.7%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.47
comorbidities = Five or more co−morbidities
Lopez Cabezas−2006 70 0.64 0.15 64 0.61 0.18 0.03 [−0.02; 0.09] 1.7% 7.1%
Stewart−2012 84 −0.18 0.35 87 −0.14 0.36 −0.05 [−0.15; 0.06] 0.5% 4.7%
Sackley−2015 160 0.20 0.36 123 0.18 0.31 0.02 [−0.06; 0.10] 0.9% 6.0%
Stewart−2015 116 0.68 0.25 112 0.68 0.26 −0.00 [−0.07; 0.07] 1.2% 6.6%
Schafer−2017 86 0.68 0.32 87 0.70 0.28 −0.02 [−0.11; 0.07] 0.7% 5.5%
Common effect model 0.01 [−0.03; 0.04] 4.9% −−
Random effects model 0.01 [−0.03; 0.04] −− 29.9%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.67
Common effect model 0.01 [0.00; 0.02] 100.0% −−
Random effects model 0.02 [−0.02; 0.05] −− 100.0%
Prediction interval [−0.12; 0.15]
Heterogeneity: I^2 = 85%, t^2 = 0.0035, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 21.17, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 1.59, df = 3 (p = 0.66)
−0.3 −0.2 −0.1 0 0.1 0.2 0.3
Favours UC Favours Intervention
EQ−5D


Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
comorbidities = Four co−morbidities
Bourbeau−2003 96 −3.50 15.00 95 −1.50 12.18 −2.00 [−5.87; 1.87] 6.4% 8.3%
Kruis−2016 241 −0.40 12.67 232 0.33 13.00 −0.73 [−3.04; 1.58] 17.9% 14.2%
Common effect model −1.06 [−3.05; 0.92] 24.3% −−
Random effects model −1.06 [−8.17; 6.04] −− 22.4%
Heterogeneity: I^2 = 0%, t^2 = 0, p = 0.58
comorbidities = Three or less co−morbidities
Wetering−2010 102 97 −2.60 [−5.15; −0.05] 14.8% 13.1%
Bucknall−2012 232 −2.99 12.56 232 1.38 11.33 −4.37 [−6.55; −2.19] 20.2% 14.9%
Pinnock−2013 128 68.20 16.30 128 67.30 17.30 0.90 [−3.22; 5.02] 5.7% 7.6%
Walters−2013 67 41.90 18.90 69 40.50 17.40 1.40 [−4.71; 7.51] 2.6% 4.2%
Zwar−2016 136 16.85 15.20 104 17.06 14.90 −0.21 [−4.05; 3.63] 6.5% 8.4%
Common effect model −2.40 [−3.79; −1.01] 49.7% −−
Random effects model −1.68 [−4.71; 1.35] −− 48.1%
Heterogeneity: I^2 = 52%, t^2 = 3.2956, p = 0.08
comorbidities = Five or more co−morbidities
Fan−2012 209 51.30 13.30 217 51.80 13.30 −0.50 [−3.03; 2.03] 15.0% 13.2%
Herna..ndez−2015 71 43.00 20.00 84 49.00 22.00 −6.00 [−12.62; 0.62] 2.2% 3.7%
Ko−2017 90 −6.90 15.30 90 −0.10 13.80 −6.80 [−11.06; −2.54] 5.3% 7.3%
Common effect model −2.52 [−4.58; −0.45] 22.5% −−
Random effects model −3.93 [−12.96; 5.10] −− 24.1%
Heterogeneity: I^2 = 73%, t^2 = 10.3549, p = 0.02
comorbidities = Not reported
Khdour−2009 86 61.80 16.55 87 65.30 18.62 −3.50 [−8.75; 1.75] 3.5% 5.3%
Common effect model −2.14 [−3.12; −1.16] 100.0% −−
Random effects model −2.12 [−3.72; −0.51] −− 100.0%
Prediction interval [−5.76; 1.52]
Heterogeneity: I^2 = 44%, t^2 = 2.0953, p = 0.06
Test for subgroup differences (fixed effect): c_3^2 = 1.65, df = 3 (p = 0.65)
Test for subgroup differences (random effects): c_3^2 = 2.50, df = 3 (p = 0.48)
−10 −5 0 5 10
Favours Intervention
Favours UC
SGRQ


Study
Total.KT
Mean.KT
SD.KT
Total.UC
Mean.UC
SD.UC
Mean Difference
MD
95%−CI
Weight (common)
Weight (random)
comorbidities = Not reported
Chi−2012 84 21.11 18.30 87 34.53 14.85 −13.42 [−18.43; −8.41] 16.0% 15.3%
Ortiz−Bautista−2017 84 23.46 22.10 43 19.80 23.30 3.66 [−4.76; 12.08] 5.7% 11.8%
Common effect model −8.96 [−13.26; −4.66] 21.7% −−
Random effects model 27.2%
Heterogeneity: I^2 = 91%, t^2 = 133.3826, p < 0.01
comorbidities = Four co−morbidities
Vaillant−Roussel−2016 76 33.40 22.10 83 27.20 23.30 6.20 [−0.86; 13.26] 8.1% 13.2%
comorbidities = Five or more co−morbidities
de la Porte−2007 118 30.20 22.10 122 34.50 23.30 −4.30 [−10.04; 1.44] 12.2% 14.6%
Stewart−2012 137 −8.00 15.84 143 −9.75 11.68 1.75 [−1.52; 5.02] 37.5% 16.9%
Wagenaar−2019 300 26.90 29.43 150 26.50 32.50 0.40 [−5.78; 6.58] 10.5% 14.1%
Common effect model 0.29 [−2.29; 2.87] 60.2% −−
Random effects model −0.19 [−7.92; 7.53] −− 45.6%
Heterogeneity: I^2 = 38%, t^2 = 4.1206, p = 0.20
comorbidities = Three or less co−morbidities
Ojeda−2005 76 35.70 18.90 77 37.80 21.00 −2.10 [−8.43; 4.23] 10.0% 14.0%
Common effect model −1.48 [−3.48; 0.52] 100.0% −−
Random effects model −1.37 [−7.39; 4.64] −− 100.0%
Prediction interval [−17.65; 14.91]
Heterogeneity: I^2 = 82%, t^2 = 33.9067, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 18.00, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 3.73, df = 3 (p = 0.29)
−30 −20 −10 0 10 20 30
Favours Intervention
Favours UC
MLHFQ


Study
Event.KT
Total.KT
Event.UC
Total.UC
Odds Ratio
OR
95%−CI
Weight (common)
Weight (random)
comorbidities = Four co−morbidities
Kiefe−2001 162 279 129 280 1.62 [1.16; 2.26] 14.8% 9.6%
comorbidities = Five or more co−morbidities
Beck−1997 130 160 103 161 2.44 [1.46; 4.07] 6.3% 9.0%
Galbreath−2004 386 710 155 359 1.57 [1.21; 2.02] 25.2% 9.9%
Levine−2011 547 640 508 605 1.12 [0.82; 1.53] 17.3% 9.7%
Morganroth−2016 33 43 30 46 1.76 [0.69; 4.47] 1.9% 7.0%
Vinereanu−2017 171 214 132 197 1.96 [1.25; 3.06] 8.3% 9.2%
Common effect model 1.54 [1.31; 1.82] 59.0% --
Random effects model 1.63 [1.12; 2.37] -- 44.7%
Heterogeneity: I^2 = 52%, t^2 = 0.0533, p = 0.08
comorbidities = Three or less co−morbidities
Lowrie−2014 40 43 30 34 1.78 [0.37; 8.55] 0.7% 4.4%
Zwar−2016 50 132 83 101 0.13 [0.07; 0.25] 4.3% 8.5%
Common effect model 0.19 [0.11; 0.33] 5.0% --
Random effects model 0.44 [0.08; 2.43] -- 12.8%
Heterogeneity: I^2 = 89%, t^2 = 3.0054, p < 0.01
comorbidities = Not reported
Hetlevik−2000 19 104 21 111 0.96 [0.48; 1.91] 3.5% 8.2%
Mitchell−2005 77 380 27 153 1.19 [0.73; 1.93] 7.0% 9.1%
Eccles−2007 171 216 165 250 1.96 [1.29; 2.98] 9.4% 9.3%
Sonnichsen−2010 10 23 11 30 1.33 [0.44; 4.03] 1.3% 6.2%
Common effect model 1.44 [1.09; 1.90] 21.2% --
Random effects model 1.38 [0.82; 2.33] -- 32.7%
Heterogeneity: I^2 = 26%, t^2 = 0.0495, p = 0.26
Common effect model 1.38 [1.21; 1.57] 100.0% --
Random effects model 1.26 [0.77; 2.05] -- 100.0%
Prediction interval [0.24; 6.49]
Heterogeneity: I^2 = 84%, t^2 = 0.4925, p < 0.01
Test for subgroup differences (fixed effect): c_3^2 = 48.81, df = 3 (p < 0.01)
Test for subgroup differences (random effects): c_3^2 = 1.64, df = 3 (p = 0.65)
0.1 0.2 0.5 1 2 3 5 10
Favours UC
Favours Intervention
Quality of Care

Appendix 18: Sensitivity Analyses of All KT Interventions vs Usual Care

Outcome	No of studies	MD/OR (95% CI) [fixed-effect model]	MD/OR (95% CI) [random-effects model]	95% PI	τ (95% CI)	I^2 (95% CI)	Q (d.f.); p-value
Excluding Outliers							
Quality of life: 36 item Short-Form Mental Health Survey (outlier Xiao, 2016[181])	13	MD: 0.84 (0.68 to 0.99)	MD: 0.12 (-0.52 to 0.75)	-2.19 to 2.43	0.98 (0.47 to 1.27)	95% (93% to 97%)	242.87 (12); <0.0001
Quality of life: 12 item Short-Form Physical Health Survey (outlier Liu 2008[119])	4	MD: 0.84 (-0.02 to 1.69)	MD: 0.84 (-0.67 to 2.34)	-1.04 to 2.71	0.00 (0.00 to 4.6)	16% (0% to 87%)	3.55 (3); 0.31
Quality of life: European Quality of Life-5 Dimensions (EQ-5D) (outlier Lin 2018[118])	14	MD: 0.00 (-0.00 to 0.01)	MD: 0.01 (-0.01 to 0.02)	-0.03 to 0.04	0.02 (0.00 to 0.03)	25% (0% to 60%)	17.35 (13); 0.18
Quality of care (outlier Zwar 2016[182])	11	OR: 1.53 (1.34 to 1.75)	OR: 1.55 (1.29 to 1.85)	1.05 to 2.29	0.15 (0.00 to 0.40)	21% (0% to 61%)	12.72 (10); 0.24
No SD imputations							
Quality of life: 36 item Short-Form Physical Health Survey	14	MD: -1.24 (-1.47 to 1.02)	MD: -0.65 (-1.22 to -0.08)	-2.63 to 1.34	0.84 (0.33 to 1.13)	79% (65% to 87%)	60.90 (13); <0.0001
Quality of life: Minnesota Living with	6	MD: -1.79 (-3.85 to 0.28)	MD: -2.04 (-9.06 to 4.98)	-20.53 to 16.45	6.07 (3.09 to 16.11)	84% (67% to 92%)	31.39 (5); <0.0001

Heart Failure Questionnaire							
Low Risk of Bias for attrition bias							
Quality of life: 12 item Short-Form Mental Health Survey	4	MD: 1.45 (0.64 to 2.25)	MD: 1.27 (-0.24 to 2.78)	-1.93 to 4.48	0.53 (0.00 to 3.45)	16% (0% to 87%)	3.55 (3); 0.31
Quality of life: 36 item Short-Form Mental Health Survey	8	MD: -1.26 (-1.58 to 0.93)	MD: -0.20 (-1.02 to 0.61)	-3.05 to 2.65	1.04 (0.00 to 2.18)	63% (19% to 83%)	18.67 (7); <0.01
Quality of life: 12 item Short-Form Physical Health Survey	5	MD: 1.26 (0.42 to 2.10)	MD: 3.72 (-5.08 to 12.52)	-19.63 to 27.07	6.67 (3.68 to 20.96)	90% (79% to 95%]	39.44 (4); < 0.0001
Quality of life: 36 item Short-Form Physical Health Survey	8	MD: -1.37 (-1.75 to -0.99)	MD: -1.16 (-1.70 to -0.62)	-2.30 to -0.03	0.35 (0.00 to 1.09)	0% (0% to 68%)	4.99 (7); 0.66
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	12	MD: 0.00 (-0.00 to 0.01)	MD: 0.00 (-0.01 to 0.02)	-0.04 to 0.04	0.02 (0.00 to 0.03)	29% (0% to 64%)	15.40 (11); 0.16
Quality of life: St George's Respiratory Questionnaire	8	MD: -2.13 (-3.18 to -1.09)	MD: -2.04 (-4.08 to 0.01)	-6.51 to 2.44	1.63 (0.00 to 5.13)	54% (0% to 79%)	15.19 (7); 0.03
Quality of life: Minnesota Living with Heart Failure Questionnaire	5	MD: 0.03 (-2.91 to 2.97)	MD: 0.29 (-4.96 to 5.55)	-9.93 to 10.52	2.59 (0.00 to >10.00)	36% (0% to 76%)	6.28 (4); 0.18
Quality of care	2	OR: 1.67 (1.34 to 2.07)	OR: 1.67 (0.48 to 5.83)	N/A	0	0%	0.78 (1); 0.38
Low Risk of Bias for selective reporting							
Quality of life: 12 item Short-Form	2	MD: 0.98 (-0.50 to 2.47)	MD: 0.98 (-2.16 to 4.13)	N/A	0	0%	0.11 (1); 0.74

Mental Health Survey							
Quality of life: 36 item Short-Form Mental Health Survey	5	MD: -1.44 (-1.78 to -1.09)	MD: -0.63 (-1.99 to 0.73)	-4.33 to 3.07	0.96 (0.00 to 2.87)	49% (0% to 81%)	7.78 (4); 0.10
Quality of life: 12 item Short-Form Physical Health Survey	2	MD: 0.23 (-1.42 to 1.88)	MD: 0.28 (-17.51 to 18.06)	N/A	1.58	64% (0% to 92%)	2.76 (1); 0.10
Quality of life: 36 item Short-Form Physical Health Survey	5	MD: -1.43 (-1.83 to -1.03)	MD: -1.22 (-1.94 to -0.50)	-2.98 to 0.54	0.40 (0.00 to 1.79)	0% (0% to 79%)	2.60 (4); 0.63
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	8	MD: -0.01 (-0.04 to 0.01)	MD: -0.01 (-0.03 to 0.00)	-0.04 to 0.02	0 (0.00 to 0.03)	0% (0% to 68%)	2.67 (7); 0.91
Quality of life: St George's Respiratory Questionnaire	4	MD: -1.79 (-3.14 to -0.45)	MD: -2.20 (-6.32 to 1.92)	-11.53 to 7.13	1.83 (0.00 to >10.00)	60% (0% to 87%)	7.52 (3); 0.06
Quality of life: Minnesota Living with Heart Failure Questionnaire	3	MD: 2.14 (-0.54 to 4.81)	MD: 2.14 (-3.17 to 7.44)	-15.21 to 19.48	0.00 (0.00 to >10.00)	0% (0% to 90%)	1.63 (2); 0.44
Quality of care (Eccles, 2007[34])	1	OR: 1.96 (1.29 to 2.98)	N/A	N/A	N/A	N/A	N/A
Follow-up of 12 months							
Quality of life: 36 item Short-Form Mental Health Survey	9	MD: 1.56 (1.37 to 1.74)	MD: 1.85 (-2.11 to 5.81)	-10.16 to13.86	4.79 (2.97 to 9.83)	88% (79% to 93%)	65.18 (8); < 0.0001
Quality of life: 12 item Short-Form Physical	1	MD: 17.00 (11.78 to 22.22)	N/A	N/A	N/A	N/A	N/A

Health Survey (Liu, 2008[119])							
Quality of life: 36 item Short-Form Physical Health Survey	10	MD: -1.57 (-1.88 to -1.27)	MD: -0.49 (-1.17 to 0.18)	-3.10 to 2.11	1.03 (0.00 to 1.80)	62% (23% to 81%)	23.35 (9); <0.01
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	12	MD: 0.01 (-0.00 to 0.01)	MD: 0.02 (-0.03 to 0.06)	-0.14 to 0.17	0.07 (0.04 to 0.12)	87% (79% to 92%)	82.39 (11); <0.0001
Quality of life: St George's Respiratory Questionnaire	10	MD: -2.06 (-3.12 to -1.00)	MD: -2.05 (-3.91 to -0.19)	-6.37 to 2.27	1.69 (0.00 to 4.61)	49% (0% to 75%)	17.58 (9); 0.04
Quality of life: Minnesota Living with Heart Failure Questionnaire	4	MD: -2.59 (-4.89 to -0.30)	MD: -3.84 (-14.84 to 7.16)	-35.49 to 27.81	6.48 (3.04 to >20.48)	88% (73% to 95%)	25.99 (3); <0.0001
Quality of care	8	OR: 1.35 (1.10 to 1.66)	OR: 1.24 (0.55 to 2.77)	0.11 to 13.56	0.91 (0.53 to 1.88)	89% (81% to 94%)	65.61 (7); <0.0001
Male participants up to 80%							
Quality of life: 36 item Short-Form Mental Health Survey	12	MD: -1.12 (-1.44 to -0.80)	MD: 1.16 (-1.73 to 4.04)	-8.46 to 10.77	4.12 (2.65 to 7.62)	88% (81% to 92%)	90.04 (11); <0.0001
Quality of life: 12 item Short-Form Physical Health Survey	4	MD: 0.84 (-0.02 to 1.69)	MD: 0.84 (-0.67 to 2.34)	-1.04 to 2.71	0.00 (0.00 to 4.63)	16% (0% to 87%)	3.55 (3); 0.31
Quality of life: 36 item Short-Form Physical Health Survey	13	MD: -1.17 (-1.52 to -0.81)	MD: -0.75 (-1.28 to -0.23)	-1.94 to 0.43	0.45 (0.00 to 0.90)	21% (0% to 59%)	15.17 (12); 0.23
Quality of life: St George's	9	MD: -2.34 (-3.41 to -1.26)	MD: -2.19 (-4.05 to -0.34)	-6.24 to 1.85	1.52 (0.00 to 4.55)	46% (0% to 75%)	14.67 (8); 0.07

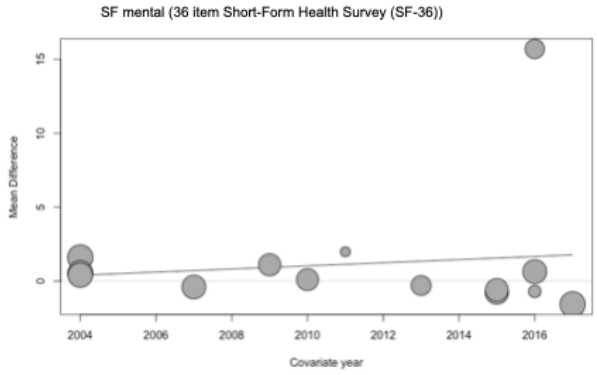
Respiratory Questionnaire							
Quality of care	10	OR: 1.40 (1.20 to 1.64)	OR: 1.24 (0.67 to 2.28)	0.18 to 8.62	0.79 (0.48 to 1.49)	87% (78% to 92%)	67.64 (9); <0.0001
History of prescription							
Quality of life: 12 item Short-Form Mental Health Survey (Stewart, 2015[164])	1	MD: -0.30 (-2.72 to 2.12)	N/A	N/A	N/A	N/A	N/A
Quality of life: 36 item Short-Form Mental Health Survey	8	MD: -1.32 (-1.65 to -0.99)	MD: -0.38 (-1.24 to 0.47)	-2.86 to 2.10	0.87 (0.00 to 1.47)	52% (0% to 78%)	14.56 (7); 0.04
Quality of life: 12 item Short-Form Physical Health Survey (Stewart, 2015[164])	1	MD: 1.50 (-1.48 to 4.48)	N/A	N/A	N/A	N/A	N/A
Quality of life: 36 item Short-Form Physical Health Survey	8	MD: -1.41 (-1.81 to -1.02)	MD: -1.27 (-1.79 to -0.75)	-2.30 to -0.24	0.29 (0.00 to 1.12)	0% (0% to 68%)	4.23 (7); 0.75
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	6	MD: 0.00 (-0.01 to 0.01)	MD: 0.00 (-0.01 to 0.01)	-0.01 to 0.01	0 (0.00 to 0.05)	0% (0% to 75%)	2.30 (5); 0.81
Quality of life: St George's Respiratory Questionnaire	8	MD: -2.72 (-3.97 to -1.47)	MD: -2.68 (-4.91 to -0.44)	-7.55 to 2.20	1.75 (0.00 to 5.35)	47% (0% to 77%)	13.25 (7); 0.07
Quality of life: Minnesota Living with Heart Failure Questionnaire	4	MD: 0.99 (-1.44 to 3.41)	MD: 0.86 (-5.37 to 7.09)	-12.26 to 13.98	2.44 (0.00 to >10.00)	46% (0% to 82%)	5.59 (3); 0.13

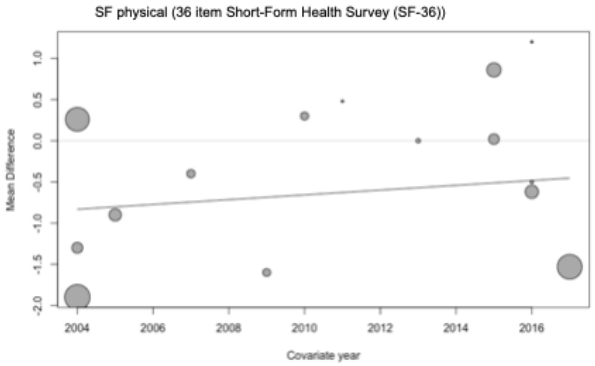
Quality of care	7	OR: 1.31 (1.12 to 1.53)	OR: 1.14 (0.46 to 2.83)	0.09 to 15.12	0.93 (0.54 to 2.12)	90% (83% to 95%)	62.69 (6); <0.0001
Concomitant CMD therapy							
Quality of life: 12 item Short-Form Mental Health Survey (Murphy, 2009[137])	1	MD: 0.70 (-1.56 to 2.96)	N/A	N/A	N/A	N/A	N/A
Quality of life: 36 item Short-Form Mental Health Survey	4	MD: -1.49 (-1.84 to -1.14)	MD: -1.08 (-2.29 to 0.12)	-4.39 to 2.22	0.59 (0.00 to 2.55)	8% (0% to 86%)	3.25 (3); 0.35
Quality of life: 12 item Short-Form Physical Health Survey (Murphy, 2009[137])	1	MD: 1.70 (-0.69 to 4.09)	N/A	N/A	N/A	N/A	N/A
Quality of life: 36 item Short-Form Physical Health Survey	4	MD: -1.42 (-1.83 to -1.02)	MD: -0.94 (-2.32 to 0.45)	-4.70 to 2.83	0.68 (0.00 to 2.88)	16% (0% to 87%)	3.58 (3); 0.31
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	2	MD: -0.00 (-0.01 to 0.01)	MD: -0.00 (-0.02 to 0.02)	N/A	0	0%	0.19 (1); 0.66
Quality of life: St George's Respiratory Questionnaire	4	MD: -4.42 (-6.20 to -2.64)	MD: -4.40 (-8.66 to -0.13)	-10.71 to 1.92	0.96 (0.00 to >10.00)	39% (0% to 79%)	4.91 (3); 0.18
Quality of life: Minnesota Living with Heart Failure Questionnaire (de la Porte, 2007[69])	1	MD: -4.30 (-10.04 to 1.44)	N/A	N/A	N/A	N/A	N/A
Quality of care	3	OR: 1.94 (1.45 to 2.59)	OR: 1.94	0.29 to 12.77	0	0%	0.05 (2); 0.98

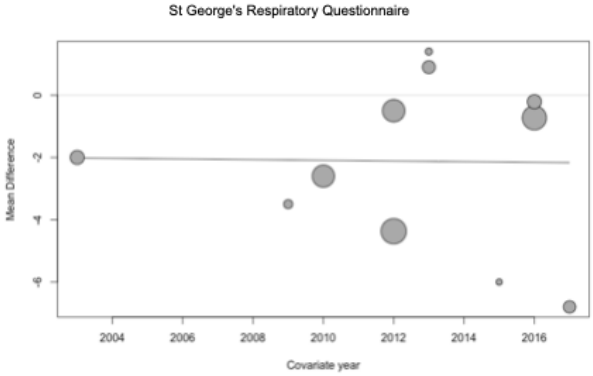
			(1.76 to 2.13)			(0% to 90%)	

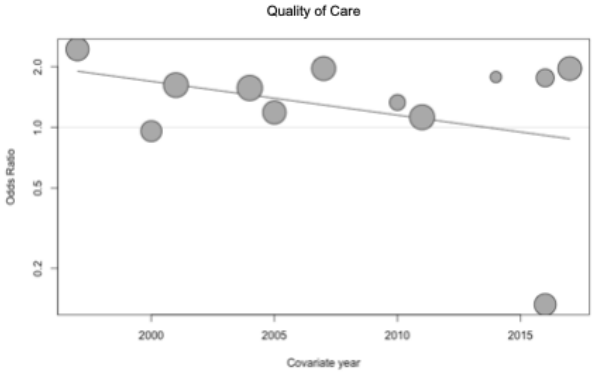
Appendix 19: Meta-regression for Each Outcome/Scale Comparing Any KT Intervention vs Usual Care

Publication Year



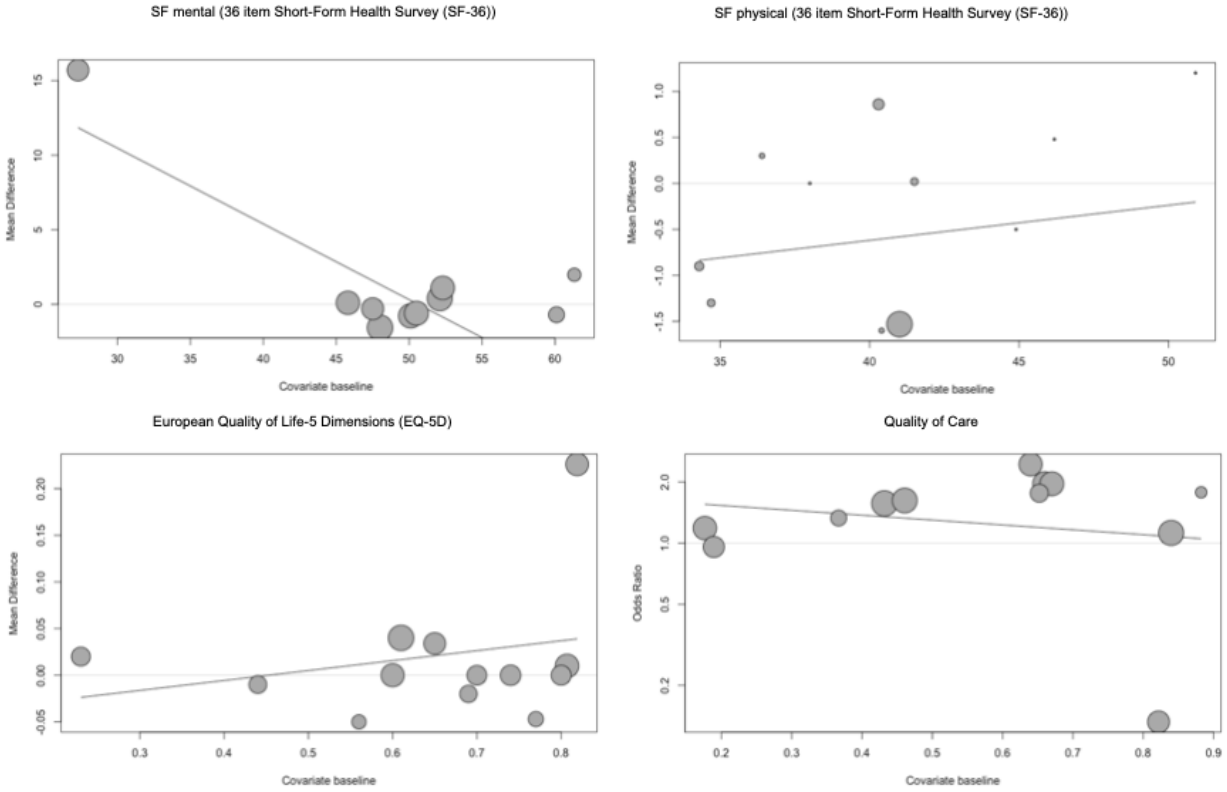






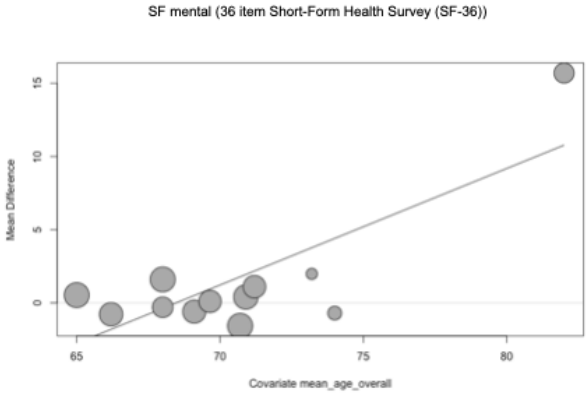
Outcome	No of studies	Regression coefficient (95% CI) [MD/Log OR]	τ	I^2
Publication Year				
Quality of life: 36 item Short-Form Mental Health Survey	14	MD: 0.11 (-0.40 to 0.61)	3.82	98%
Quality of life: 36 item Short-Form Physical Health Survey	15	MD: 0.03 (-0.07 to 0.13)	0.87	66%
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	15	MD: 0.00 (-0.01 to 0.02)	0.06	84%
Quality of life: St George's Respiratory Questionnaire	11	MD: -0.01 (-0.48 to 0.46)	1.64	48%
Quality of care	12	LogOR: -0.04 (-0.11 to 0.04)	0.68	89%

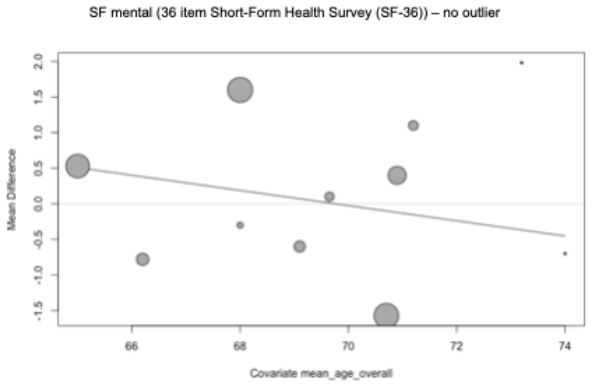
Low Quality of Life Baseline

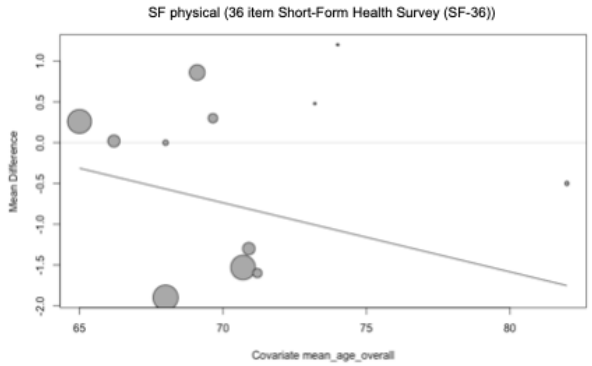


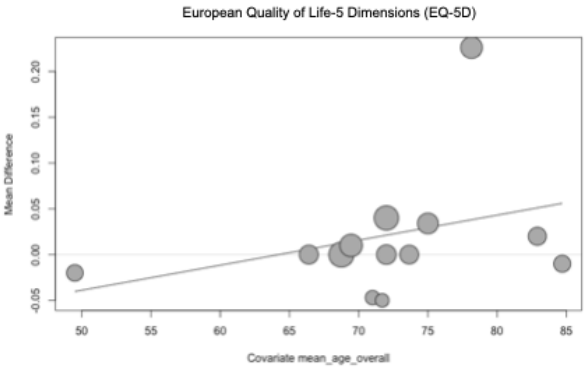
Outcome	No of studies	Regression coefficient (95% CI) [MD/Log OR]	τ	I^2
Low Quality of Life Baseline				
Quality of life: 36 item Short-Form Mental Health Survey	10	MD: -0.51 (-0.80 to -0.22)	2.11	83%
Quality of life: 36 item Short-Form Physical Health Survey	11	MD: 0.04 (-0.18 to 0.25)	0.71	35%
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	13	MD: 0.11 (-0.17 to 0.38)	0.06	84%
Quality of care	12	Log OR: -0.55 (-2.81 to 1.71)	0.73	90%

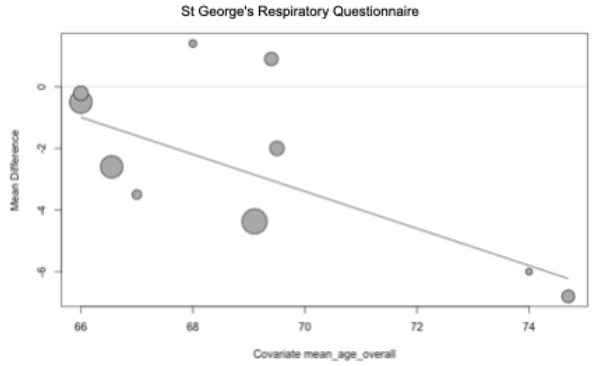
Mean participant age











Outcome	No of studies	Regression coefficient (95% CI) [MD/Log OR]	τ	I^2
Mean Participant Age				
Quality of life: 36 item Short-Form Mental Health Survey	12	MD: 0.80 (0.35to 1.24)	2.37	97%
Quality of life: 36 item Short-Form Mental Health Survey (Excluding Outlier)	11	MD: -0.11 (-0.45 to 0.23)	1.07	86%
Quality of life: 36 item Short-Form Physical Health Survey	12	MD: -0.08 (-0.31 to 0.14)	0.90	75%
Quality of life: European Quality of Life-5 Dimensions (EQ-5D)	13	MD: 0.00 (0.00 to 0.01)	0.06	90%
Quality of life: St George's Respiratory Questionnaire	10	MD: -0.60 (-1.15 to -0.06)	0.74	14%

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