**Supplement 8. The results of the sensitivity analysis.**

The results of the sensitivity analysis stratified by physical activity outcome assessed in quantitative evidence (likelihood) are reported separately for each barrier and enabler in Table 1 in this supplement. Sensitivity analysis stratified by the physical outcome highlighted the following changes in the evidence in comparison to the main results. Studies (n = 2; Snipelisky et al., 2017; Witham, Argo, Johnston, Struthers, & McMurdo, 2006)) assessing physical activity using accelerometer did not support depression as a considerable barrier to physical activity (Table 2). Studies (n = 4; (Chien, Chen, Garet, & Wang, 2014; Lee et al., 2016; Moreno-Suarez, Liew, Dembo, Larbalestier, & Maiorana, 2019; Pozehl et al., 2018) assessing the relationships between energy expenditure (METs) provided evidence with moderate uncertainty regarding perceived symptoms in comparison to the main results suggesting that perceived symptoms is a barrier with low uncertainty in the evidence (Table 3). Studies (n = 3; (Alosco et al., 2012; Dontje et al., 2014; Werhahn et al., 2019) that assessed steps per day using an accelerometer suggest a considerably high uncertainty in the evidence regarding the barriers (i.e., Pro-BNP) and enablers (i.e., 6MWT, physical functioning, LVEF, Peak VO2), Table 4.

The findings of the meta-analysis restricted to the studies assessing self-reported physical activity duration per day (Table 5), self-reported exercise recommendation compliance (Table 6), self-reported general physical activity (IPAQ, Table 7), and physical activity as self-care behaviour (Table 8) did not differ from the main results. However, a study assessing exercise as a form of self-care provided evidence for only one of the enablers identified in this review – social support. Social support was not assessed as an enabler in studies with physical activity outcomes other than self-care (Table 8). The likelihood (quantitative evidence) and posterior (prior combined with likelihood) elicited from the evidence stratified by physical activity outcome are illustrated below in Figures 1-14.

**Table 1. Likelihood: the summary results of the Bayesian meta-analysis of the quantitative evidence.**

|  | Pooled  *OR,* 95%*CrI* \* | Accelerometer units,  *OR,* 95%*CrI* | Energy expenditure  (METs, assessed objectively using accelerometer) | Exercise recommendation compliance  (self-reported) | Duration per day  (Mins/day, assessed objectively using accelerometer) | Self-reported general physical activity (International Physical Activity Questionnaire, IPAQ) | Steps per day  (pedometer) | Exercise self-care behaviour  (self-reported) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Construct** |  |  |  |  |  |  |  |  |
| Age | -0.41  [-0.57; -0.25] | -- | -1.46  [-1.66;-1.26] | -- | -0.94  [-1.05;-0.83] | -- | -- | -- |
| Six-minute Walking Test (6MWT) (*Soma in qual*) | 1.77  [1.00; 2.54] | 2.13  [1.91;2.34] | 1.54  [1.43;1.65] | 1.24  [0.97;1.51] | 1.88  [1.77;1.99] | -- | **3.27**  **[-1.11;7.65]** | -- |
| Perceived Symptoms | 0.48  [0.40; 0.55] | -- | 0.29  [0.18;0.4] | -- | 0.66  [0.55;0.77] | -- | -- | -- |
| Left Ventricular Ejection Fraction (LVEF), % (*Soma in qual*) | 0.16  [-0.47; 0.79] | -- | 0.33  [0.15;0.51] | -- | -- | -- | **1.78**  **[-1.2;4.76]** | -- |
| Self-efficacy | 0.84  [0.61; 1.06] | -- | 0.36  [0.16;0.56] | -- | 0.64  [0.54;0.75] | 1.88  [1.47;2.29] | -- | -- |
| Social support | 0.76  [0.65; 0.87] | -- | -- | -- | -- | -- | -- | 0.76  [0.65;0.87] |
| Comorbidity | -0.94  [-1.16; -0.72] | -- | -0.55  [-0.66;-0.44] | -- | -0.66  [-0.77;-0.55] | -- | -- | -- |
| Negative attitude | -0.51  [-0.62; -0.40] | -- | -0.55  [-0.66;-0.44] | -- | -0.51  [-0.62;-0.4] | -- | -- | -- |
| Physical functioning | 0.90  [-0.06; 1.86] | 1.3  [1.19;1.41] | 0.55  [0.44;0.66] | -- | 0.82  [0.71;0.93] | -- | **2.45**  **[-1.07;5.97]** | -- |
| Positive attitude | 1.02  [0.80; 1.23] | 1.58  [1.26;1.9] | 0.66  [0.55;0.77] | -- | 0.59  [0.48;0.7] | -- | -- | -- |
| Depression | -0.54  [-0.71; -0.38] | **0.01**  **[-0.1;0.12]** | -0.29  [-0.4;-0.18] | -- | -0.48  [-0.59;-0.37] | -- | -- | -- |
| Digoxin prescription | -1.06  [-1.33; -0.79] | -1.06  [-1.33;-0.79] | -- | -- | -- | -- | -- | -- |
| Doppler estimated filling pressure | -0.71  [-0.82; -0.60] | -0.71  [-0.82;-0.6] | -- | -- | -- | -- | -- | -- |
| Dysphoria | 0.38  [0.11; 0.65] |  |  | 0.38  [0.11;0.65] |  |  |  |  |
| Employment | -0.21  [-0.42; 0.01] | -- | -0.21  [-0.43;0.01] | -- | -0.62  [-0.84;-0.4] | -- | -- | -- |
| Ethnicity | 0.32  [0.21; 0.42] | 0.14  [0.03;0.25] | 0.11  [0; 0.22] | -- | 0.7  [0.59;0.81] | -- | -- | -- |
| HF duration | -0.95  [-1.19; -0.71] | -- | -0.74  [-0.96;-0.52] | -1.21  [-1.48;-0.94] | -- | -- | -- | -- |
| HFrEF (Yes, vs HFpEF) | -0.22  [-0.49; 0.05] | -- | -0.22  [-0.49;0.05] | -- | -0.3  [-0.35;-0.25] | -- | -- | -- |
| High pro-BNP | -1.16  [-1.21; -1.11] | -1.16  [-1.21;-1.11] | -- | -- | -- | -- | **1.44**  **[-1.32;4.2]** | -- |
| Hostility | 0.79  [0.52; 1.06] |  |  | 0.41  [0.52;1.06] |  |  |  |  |
| Income | 0.18  [0.02; 0.34] | -- | 0.18  [0.02;0.34] | -- | -- | -- | -- | -- |
| Left Atrial Volume index (LAV) | -1.12  [-1.23; -1.01] | -1.12  [-1.23;-1.01] | -- | -- | -- | -- | -- | -- |
| Left Ventricular Assist Device (LVAD) | 1.98  [1.60; 2.36] | -- | 1.98  [1.6; 2.36] | -- | -- | -- | -- | -- |
| Left Ventricular Remodelling (LVR) | -0.20  [-0.31; -0.09] | -0.2  [-0.31;-0.09] | -- | -- | -- | -- | -- | -- |
| Living with Partner | -0.37  [-0.51; -0.24] | -- | -0.37  [-0.51; -0.24] | -- | -- | -- | -- | -- |
| Peak VO2 | 1.54  [-0.41; 3.49] | -- | -- | 1.45  [1.13;1.77] |  | -- | **2.52**  **[-1.05;6.09]** | -- |
| Perceived exertion | -0.98  [-1.52; -0.44] | -- | -- | -- | -- | -0.98  [-1.52;-0.44] | -- | -- |
| Quality of Life (QoL) | 0.51  [0.39; 0.64] | 0.94  [0.83;1.05] | -0.23  [-0.39;0.07] |  |  |  |  |  |
| Renal function | 1.07  [0.96; 1.18] | 1.07  [0.96;1.18] | -- | -- | -- | -- | -- | -- |
| Smoking | 0.66  [0.44; 0.88] | -- | 0.66  [0.44;0.88] | -- | -- | -- | -- | -- |
| Symptom distress | -0.25  [-0.47;-0.03] | -- | -0.25  [-0.47;-0.03] | -- | -- | -- | -- | -- |

Note: 1. The results stratified by physical activity outcome that are different to the results of the pooled meta-analysis are highlighted in **bold**. 2. When a study reported several physical activity outcomes only one outcome from each study was included in the pooled analysis (supplement 3). ***OR*** – odds ratio; ***CrI*** – credible interval; **METs** – metabolic equivalents, one MET is equal to the amount of oxygen consumed while sitting at rest and is equal to 3.5 ml O2 per kg body weight x min.

**Table 2. Sensitivity analysis restricted to studies with accelerometer units outcome: the expected value for the log OR according to the expert elicitation task, quantitative evidence, and the posterior (qual + QUANT) describing the association between physical activity and identified barriers and enablers.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Construct** | **Prior** | | **Likelihood** | | **Posterior** | |  |
| **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% Cr** | **SD**  **(Uncertainty)** |
| 6MWT | 0.02 | [-0.2;0.24] | 2.13 | [1.91;2.34] | 1.08 | [0.97;1.19] | 0.26 |
| Physical Functioning | 0.02 | [-0.2;0.24] | 1.3 | [1.19;1.41] | 0.88 | [0.81;0.95] | 0.21 |
| Positive Attitude | 0.69 | [0.22;1.16] | 1.58 | [1.26;1.9] | 1.22 | [1.03;1.41] | 0.34 |
| Depression |  |  | 0.01 | [-0.1;0.12] |  |  | 0.26 |
| Ethnicity |  |  | 0.14 | [0.03;0.25] |  |  | 0.26 |
| highproBNP |  |  | -1.16 | [-1.21;-1.11] |  |  | 0.18 |
| Renal Function |  |  | 1.07 | [0.96;1.18] |  |  | 0.26 |
| QoL |  |  | 0.94 | [0.83;1.05] |  |  | 0.26 |
| LAV |  |  | -1.12 | [-1.23;-1.01] |  |  | 0.26 |
| LVR |  |  | -0.2 | [-0.31;-0.09] |  |  | 0.26 |
| Digoxin |  |  | -1.06 | [-1.33;-0.79] |  |  | 0.41 |
| Doppler |  |  | -0.71 | [-0.82;-0.6] |  |  | 0.26 |

Note. OR – Odds ratio; CrI – Credible Interval.



**Figure 1. Accelerometer units: likelihood distribution for each construct.**



**Figure 2 Accelerometer units: prior, likelihood and posterior distributions for each construct.**

**Table 3. Energy expenditure (METs, assessed objectively using accelerometer) outcome: the expected value for the log OR according to the expert elicitation task, quantitative evidence, and the posterior (qual + QUANT) describing the association between physical activity and identified barriers and enablers.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Prior** | | **Likelihood** | | **Posterior** | | **SD**  **(Uncertainty)** |
| **Construct** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% Cr** |
| **Age** | 0.01 | [-0.4;0.42] | -1.46 | [-1.66;-1.26] | -0.98 | [-1.11;-0.85] | 0.28 |
| **Comorbidity** | 0.01 | [-0.41;0.43] | -0.55 | [-0.66;-0.44] | -0.44 | [-0.52;-0.35] | 0.23 |
| **6MWT** | 0.02 | [-0.2;0.24] | 1.54 | [1.43;1.65] | 1.04 | [0.97;1.11] | 0.21 |
| **LVEF** | 0.02 | [-0.2;0.24] | 0.33 | [0.15;0.51] | 0.19 | [0.09;0.29] | 0.25 |
| **Physical Functioning** | 0.02 | [-0.2;0.24] | 0.55 | [0.44;0.66] | 0.38 | [0.3;0.45] | 0.21 |
| **Perceived symptoms** | 0.06 | [-0.34;0.45] | 0.29 | [0.18;0.4] | 0.24 | [0.16;0.33] | 0.23 |
| **Self-efficacy** | 0.06 | [-0.15;0.27] | 0.36 | [0.16;0.56] | 0.21 | [0.11;0.32] | 0.25 |
| **Negative attitude** | 0.09 | [-0.38;0.56] | -0.55 | [-0.66;-0.44] | -0.43 | [-0.52;-0.34] | 0.23 |
| **Positive attitude** | 0.69 | [0.22;1.16] | 0.66 | [0.55;0.77] | 0.67 | [0.58;0.75] | 0.23 |
| **Smoking** |  |  | 0.66 | [0.44;0.88] |  |  | 0.36 |
| **Income** |  |  | 0.18 | [0.02;0.34] |  |  | 0.31 |
| **Depression** |  |  | -0.29 | [-0.4;-0.18] |  |  | 0.26 |
| **Partner** |  |  | -0.37 | [-0.51; -0.24] |  |  | 0.41 |
| **HF Duration** |  |  | -0.74 | [-0.96;-0.52] |  |  | 0.36 |
| **Ethnicity** |  |  | 0.11 | [0; 0.22] |  |  | 0.26 |
| **LVAD** |  |  | 1.98 | [1.6; 2.36] |  |  | 0.48 |
| **BMI** |  |  | 1.4 | [1.18;1.61] |  |  | 0.36 |
| **HFrEF (Yes)** |  |  | -0.22 | [-0.49;0.05] |  |  | 0.41 |
| **Employment** |  |  | -0.21 | [-0.43;0.01] |  |  | 0.36 |
| **Symptom distress** |  |  | -0.25 | [-0.47;-0.03] |  |  | 0.36 |
| **QoL** |  |  | -0.23 | [-0.39;-0.07] |  |  | 0.31 |

Note. OR – Odds ratio; CrI – Credible Interval.

**Figure 3. Energy expenditure: likelihood distribution for each construct.**



**Figure 4. Energy expenditure: prior, likelihood and posterior distributions for each construct.**

**Table 4. Exercise recommendation compliance (self-reported) outcome: the expected value for the log OR according to the expert elicitation task, quantitative evidence, and the posterior (qual + QUANT) describing the association between physical activity and identified barriers and enablers.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Construct** | **Prior** | | **Likelihood** | | **Posterior** | | **SD**  **(Uncertainty)** |
| **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% Cr** |
| **Comorbidity** | 0.01 | [-0.41;0.43] | -1.4 | [-1.72;-1.08] | -0.79 | [-0.97;-0.6] | 0.33 |
| **6MWT** | 0.02 | [-0.2;0.24] | 1.24 | [0.97;1.51] | 0.57 | [0.45;0.69] | 0.27 |
| **PeakVO2** |  |  | 1.45 | [1.13;1.77] |  |  | 0.44 |
| **Depression** |  |  | 0 | [-0.14;0.14] |  |  | 0.29 |
| **Dysphoria** |  |  | 0.38 | [0.11;0.65] |  |  | 0.41 |
| **HF Duration** |  |  | -1.21 | [-1.48;-0.94] |  |  | 0.41 |
| **Hostility** |  |  | 0.41 | [0.52;1.06] |  |  | 0.41 |

Note. OR – Odds ratio; CrI – Credible Interval.



**Figure 5. Exercise recommendation compliance: likelihood distribution for each construct.**

**Figure 6. Exercise compliance and compare plot: prior, likelihood and posterior distributions for each construct.**

**Table 5. Duration per day (mins/day) outcome: the expected value for the log OR according to the expert elicitation task, quantitative evidence, and the posterior (qual + QUANT) describing the association between physical activity and identified barriers and enablers.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Construct** | **Prior** | | **Likelihood** | | **Posterior** | | **SD**  **(Uncertainty)** |
| **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% Cr** |
| **Age** | 0.01 | [-0.4;0.42] | -0.94 | [-1.05;-0.83] | -0.74 | [-0.83;-0.66] | 0.23 |
| **Comorbidity** | 0.01 | [-0.41;0.43] | -0.66 | [-0.77;-0.55] | -0.52 | [-0.61;-0.44] | 0.23 |
| **6MWT** | 0.02 | [-0.2;0.24] | 1.88 | [1.77;1.99] | 1.27 | [1.2;1.34] | 0.21 |
| **Physical Functioning** | 0.02 | [-0.2;0.24] | 0.82 | [0.71;0.93] | 0.56 | [0.48;0.63] | 0.21 |
| **Perceived Symptoms** | 0.06 | [-0.34;0.45] | 0.66 | [0.55;0.77] | 0.53 | [0.45;0.62] | 0.23 |
| **Self-efficacy** | 0.06 | [-0.15;0.27 | 0.64 | [0.54;0.75] | 0.45 | [0.37;0.52] | 0.21 |
| **Negative Attitude** | 0.09 | [-0.38;0.56] | -0.51 | [-0.62;-0.4] | -0.4 | [-0.49;-0.31] | 0.23 |
| **Positive Attitude** | 0.69 | [0.22;1.16] | 0.59 | [0.48;0.7] | 0.61 | [0.52;0.7] | 0.23 |
| **Depression** |  |  | -0.48 | [-0.59;-0.37] |  |  | 0.26 |
| **Ethnicity** |  |  | 0.7 | [0.59;0.81] |  |  | 0.26 |
| **BMI** |  |  | -0.4 | [-0.51;-0.29] |  |  | 0.26 |
| **HFrEF (Yes)** |  |  | -0.3 | [-0.35;-0.25] |  |  | 0.18 |
| **Employment** |  |  | -0.62 | [-0.84;-0.4] |  |  | 0.36 |
| **QoL** |  |  | 0.51 | [0.4;0.62] |  |  | 0.26 |

Note. OR – Odds ratio; CrI – Credible Interval.



**Figure 7. Duration (mins/day): likelihood distribution for each construct.**



**Figure 8. Duration (mins/day): prior, likelihood and posterior distributions for each construct.**

**Table 6. Self-reported general physical activity (International Physical Activity Questionnaire, IPAQ) outcome: the expected value for the log OR according to the expert elicitation task, quantitative evidence, and the posterior (qual + QUANT) describing the association between physical activity and identified barriers and enablers.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Construct** | **Prior** | | **Likelihood** | | **Posterior** | | **SD**  **(Uncertainty)** |
| **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% Cr** |
| **Self-efficacy** | 0.06 | [-0.15;0.27] | 1.88 | [1.47;2.29] | 0.68 | [0.54;0.82] | 0.29 |
| **Perceived Exertion** |  |  | -0.98 | [-1.52;-0.44] |  |  | 0.57 |

Note. OR – Odds ratio; CrI – Credible Interval.



**Figure 9. Self-reported general physical activity (International Physical Activity Questionnaire, IPAQ): likelihood distribution for each construct.**



**Figure 10. Self-reported general physical activity (International Physical Activity Questionnaire, IPAQ): prior, likelihood and posterior distributions for each construct.**

**Table 7. Exercise self-care behaviour (self-reported) outcome: the expected value for the log OR according to the expert elicitation task, quantitative evidence, and the posterior (qual + QUANT) describing the association between physical activity and identified barriers and enablers.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Construct** | **Prior** | | **Likelihood** | | **Posterior** | | **SD**  **(Uncertainty)** |
| **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% Cr** |
| **Social Support** | 0.03 | [-0.24;0.31] | 0.76 | [0.65;0.87] | 0.56 | [0.48;0.63] | 0.22 |

Note. OR – Odds ratio; CrI – Credible Interval.



**Figure 11. Exercise self-care behaviour (self-reported): likelihood distribution for each construct.**

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**Figure 12. Exercise self-care behaviour (self-reported): prior, likelihood and posterior distributions for each construct.**

**Table 8. Steps per day outcome: the expected value for the log OR according to the expert elicitation task, quantitative evidence, and the posterior (qual + QUANT) describing the association between physical activity and identified barriers and enablers.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Construct** | **Prior** | | **Likelihood** | | **Posterior** | | **SD**  **(Uncertainty)** |
| **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% CrI** | **Expected value (log OR)** | **95% Cr** |
| **6MWT** | 0.02 | [-0.2;0.24] | 3.27 | [-1.11;7.65] | 0.18 | [-0.03;0.39] | 0.36 |
| **LVEF** | 0.02 | [-0.2;0.24] | 1.78 | [-1.2;4.76] | 0.14 | [-0.06;0.35] | 0.35 |
| **Physical Functioning** | 0.02 | [-0.2;0.24] | 2.45 | [-1.07;5.97] | 0.16 | [-0.04;0.37] | 0.36 |
| **PeakVO2** |  |  | 2.52 | [-1.05;6.09] |  |  | 1.47 |
| **proBNP** |  |  | 1.44 | [-1.32;4.2] |  |  | 1.3 |

Note. OR – Odds ratio; CrI – Credible Interval.

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**Figure 13. Steps per day: likelihood distribution for each construct.**



**Figure 14. Steps per day: prior, likelihood and posterior distributions for each construct.**

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