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Effectiveness of physical activity interventions in achieving behaviour change maintenance in young and middle aged adults: a systematic review and meta-analysis

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Supplementary file 6: Univariable and multivariable meta-regression models.

| Component | Univariable models | | Multivariable model | |
|--|-----------------------------|-------------|----------------------|---------|
| | Coefficient (95% CI) | P-value | Coefficient (95% CI) | P-value |
| Participant characteristics | | | | |
| Age (years) ¹ | -0.002 (-0.01, 0.008) | 0.67 | | |
| Female (%) ¹ | 0.005 (-0.001, 0.01) | 0.12 | | |
| Setting | | | | |
| Work/university vs community | -0.02 (-0.29, 0.25) | 0.88 | | |
| Primary care vs community | -0.22 (-0.46, 0.03) | 0.08 | -0.13 (-0.30, 0.03) | 0.10 |
| Delivery² | | | | |
| Group vs individual only | -0.001 (-0.38, 0.37) | 0.99 | | |
| Individual and group vs individual only | 0.04 (-0.23, 0.31) | 0.75 | | |
| Contact³ | | | | |
| In-person vs no in-person contact | 0.11 (-0.08, 0.31) | 0.25 | | |
| Study characteristics⁴ | | | | |
| ITT analysis (yes vs no) | 0.13 (-0.09, 0.35) | 0.24 | | |
| Intervention duration (months) ¹ | 0.0003 (-0.02, 0.02) | 0.97 | | |
| Attrition rate (%) ¹ | -0.004 (-0.01, 0.005) | 0.39 | | |
| Behaviour Change Techniques (BCTs)⁵ | | | | |
| Goals and planning | -0.02 (-0.07, 0.04) | 0.58 | | |
| 5. Goal setting (behaviour) | 0.17 (-0.06, 0.40) | 0.15 | | |
| 7. Action planning | -0.15 (-0.36, 0.07) | 0.18 | | |
| 8. Barrier identification/problem solving | 0.04 (-0.16, 0.25) | 0.67 | | |
| 10. Prompt review of behavioural goals | -0.13 (-0.37, 0.11) | 0.29 | | |
| 20. Provide information on where and when to perform behaviour | -0.05 (-0.30, 0.20) | 0.70 | | |
| 25. Agree behavioural contract | -0.11 (-0.49, 0.27) | 0.57 | | |
| 35. Relapse prevention/coping planning | -0.14 (-0.39, 0.11) | 0.28 | | |
| Reward and threat | -0.04 (-0.32, 0.23) | 0.76 | | |
| 12. Prompt rewards contingent on effort/progress towards behaviour | 0.23 (-0.19, 0.65) | 0.27 | | |
| 13. Provide rewards contingent on successful behaviour | -0.21 (-0.54, 0.12) | 0.21 | | |
| Regulation | 0.08 (-0.68, 0.85) | 0.82 | | |
| 38. Time management | 0.08 (-0.68, 0.85) | 0.82 | | |
| Identity | 0.36 (-0.24, 0.96) | 0.23 | | |
| 30. Prompt identification as role model/position advocate | 0.36 (-0.24, 0.96) | 0.23 | | |
| Feedback and monitoring | 0.05 (-0.08, 0.18) | 0.43 | | |
| 16. Prompt self-monitoring of behaviour | 0.06 (-0.14, 0.27) | 0.54 | | |
| 17. Prompt self-monitoring of behavioural outcome | 1.44 (0.78, 2.10) | <0.01 | 1.46 (0.87, 2.05) | <0.01 |
| 19. Provide feedback on performance | -0.04 (-0.24, 0.16) | 0.71 | | |
| Social support | -0.07 (-0.28, 0.13) | 0.46 | | |
| 29. Plan social support/social change | -0.08 (-0.29, 0.13) | 0.45 | | |
| 37. Motivational interviewing | -0.002 (-0.42, 0.41) | 0.99 | | |
| Shaping knowledge | -0.02 (-0.24, 0.20) | 0.86 | | |
| 21. Provide instruction on how to perform the behaviour | -0.02 (-0.24, 0.20) | 0.86 | | |
| Natural consequences | -0.04 (-0.18, 0.10) | 0.54 | | |
| 1. Provide information on consequences of behaviour in general | -0.008 (-0.20, 0.18) | 0.93 | | |
| 2. Provide information on consequences of behaviour to individual | -0.12 (-0.36, 0.13) | 0.34 | | |
| Comparison of behaviour | -0.003 (-0.14, 0.13) | 0.96 | | |
| 4. Provide normative information about others' behaviour | -0.07 (-0.35, 0.21) | 0.60 | | |
| 22. Model/Demonstrate the behaviour | -0.02 (-0.36, 0.32) | 0.92 | | |
| 28. Facilitate social comparison | 0.07 (-0.20, 0.35) | 0.61 | | |
| Associations | -0.35 (-0.82, 0.11) | 0.13 | | |
| 23. Teach to use prompts/cues | -0.35 (-0.82, 0.11) | 0.13 | | |

| | | | | |
|--|---------------------------|-----------------|-------------------|-------|
| Repetition and substitution | 0.02 (-0.16, 0.20) | 0.83 | | |
| 9. Set graded tasks | 0.19 (-0.12, 0.50) | 0.23 | | |
| 15. Prompting generalisation of a target behaviour | -0.17 (-0.53, 0.18) | 0.33 | | |
| 26. Prompt practice | 0.006 (-0.38, 0.39) | 0.98 | | |
| Use of follow-up prompts | 0.38 (0.11, 0.66) | <0.01 | | |
| 27. Use of follow-up prompts | 0.38 (0.11, 0.66) | <0.01 | 0.38 (0.16, 0.60) | <0.01 |
| Credible source | 0.01 (-0.19, 0.21) | 0.91 | | |
| 41. Credible source | 0.01 (-0.19, 0.21) | 0.91 | | |

¹Continuous variables were mean-centred prior to analysis.

²The 'Delivery' variable captured whether the intervention was delivered to participants on an individual- or group-basis or whether there were aspects of both.

³The 'Contact' variable captured whether there was in-person contact with interventionists.

⁴'Intervention duration' referred to length of time during which the intervention was active (months), including period of limited contact if applicable. If the intervention did not actively end, this was determined as the length of the study's last follow-up from baseline. 'ITT analysis' captured whether studies reported results on an intention-to-treat basis, 'Attrition' referred to the percentage dropout.

⁵BCT numbers refer to ordering in the CALO-RE taxonomy. Domains of BCTs were not considered for the multivariable model, only individual BCTs were considered.