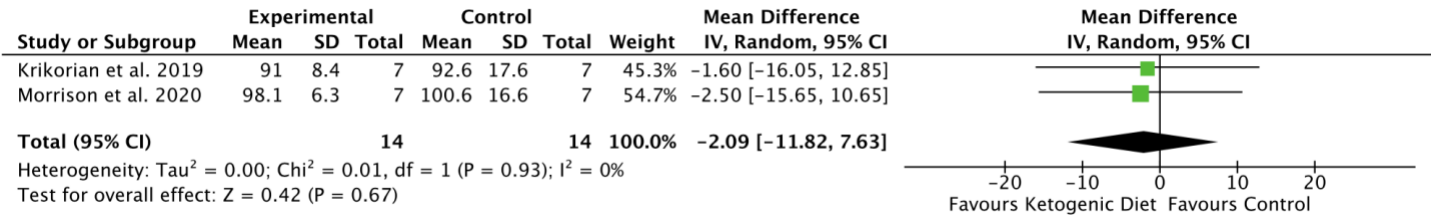
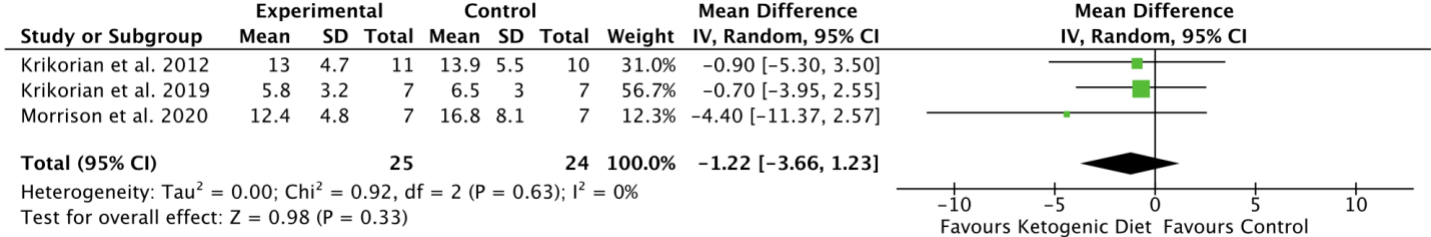


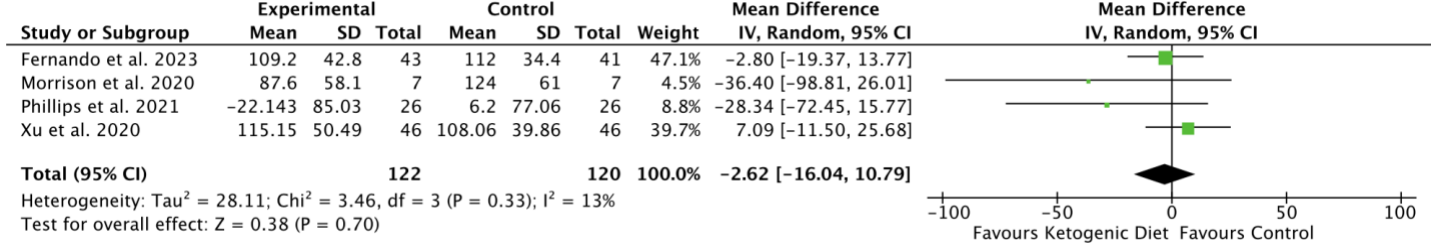
a)



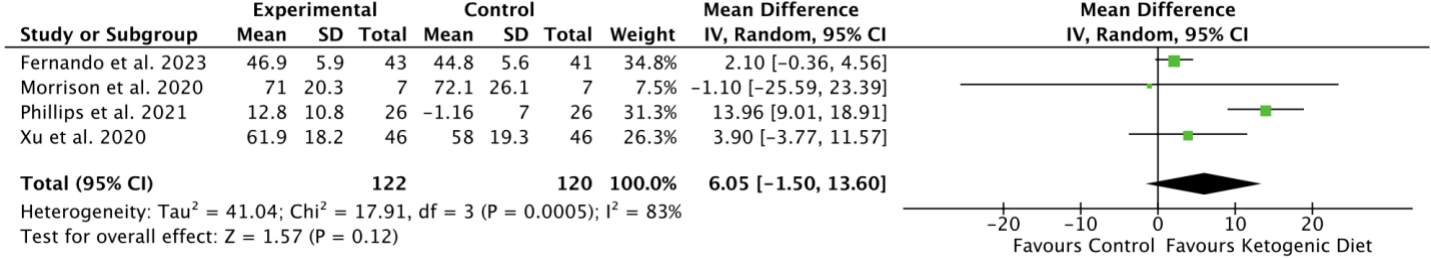
b)



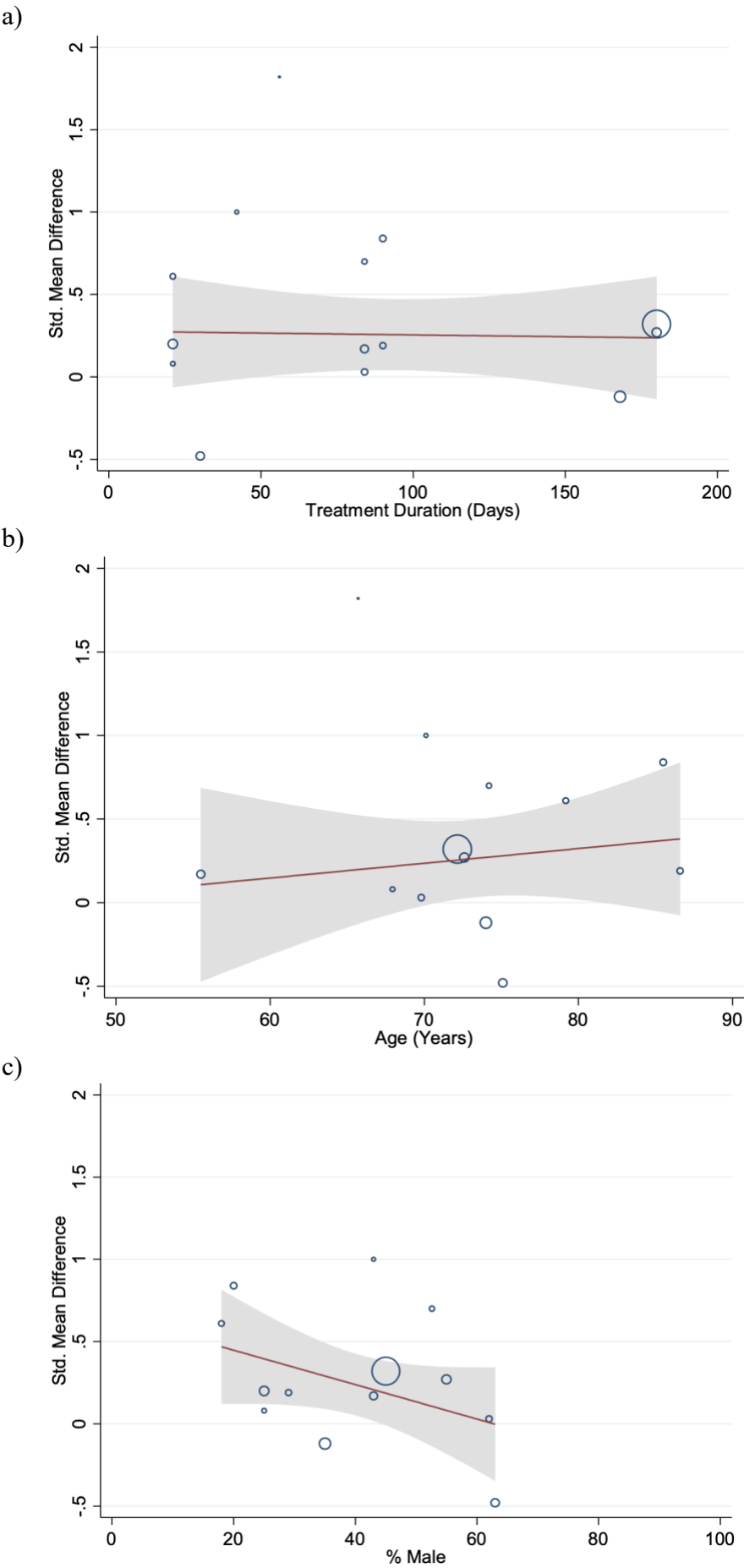
c)



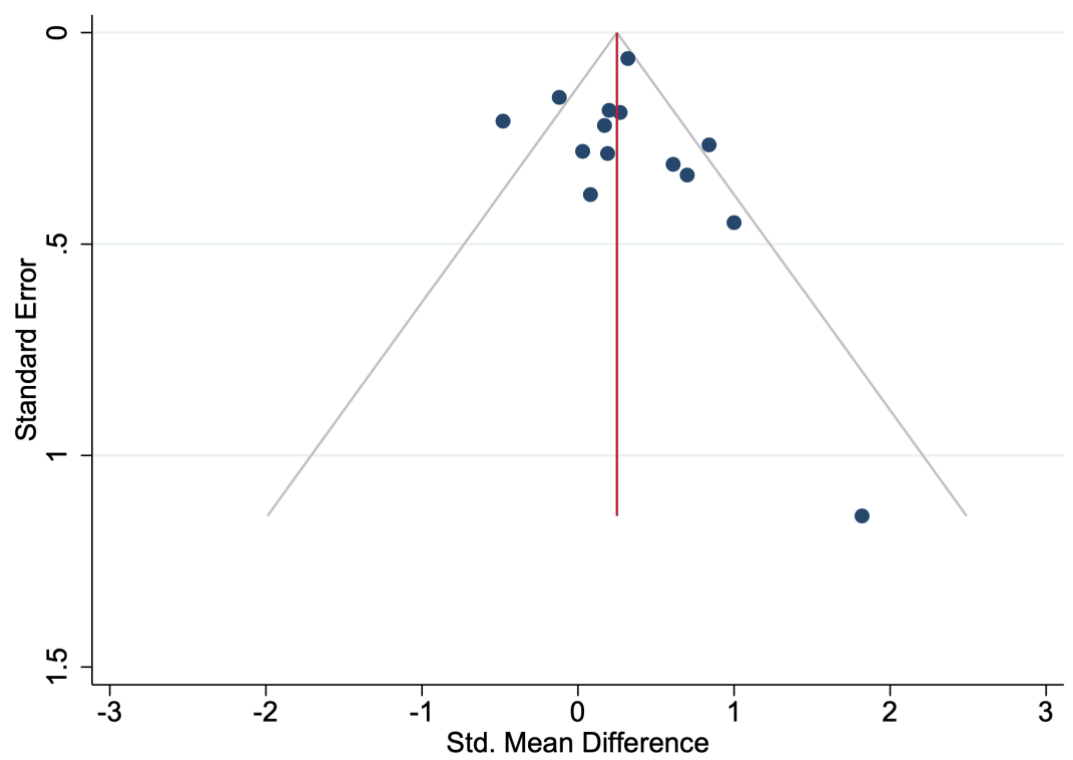
d)



**Supplementary Figure S1.** The effect of ketogenic interventions on metabolic parameters, including a) glucose (mg/dL), b) insulin (μIU/mL), c) triglyceride (mg/dL), and d) HDL cholesterol (mg/dL).



**Supplementary Figure S2.** Meta-regression bubble plot assessing the association between cognition and the a) duration of the ketogenic intervention (days) ( $\beta=-0.0002$ ;  $p=0.902$ ), b) average study population age (years) ( $\beta=0.009$ ;  $p=0.561$ ), and c) percentage of males in the study population ( $\beta=-0.010$ ;  $p=0.112$ ). No significant associations were determined ( $p>0.05$ ). Grey shaded region: 95% Confidence Interval.



**Supplementary Figure S3.** Funnel plot analysis for publication bias.

**Supplementary Table S1.** OVID Medline search strategy from database inception to April 16, 2026.

|                                                                                                                                   |                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present> |                                                                                                                                                                                                                                             |
| 1                                                                                                                                 | Diet, Ketogenic/                                                                                                                                                                                                                            |
| 2                                                                                                                                 | Diet, Paleolithic/                                                                                                                                                                                                                          |
| 3                                                                                                                                 | diet, carbohydrate-restricted/                                                                                                                                                                                                              |
| 4                                                                                                                                 | diet, high-protein low-carbohydrate/                                                                                                                                                                                                        |
| 5                                                                                                                                 | diet, high-protein/                                                                                                                                                                                                                         |
| 6                                                                                                                                 | (keto* adj10 (agent or agents or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                                             |
| 7                                                                                                                                 | 3-Hydroxybutyric Acid/ and (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*).ab,kf,ti.                                                                          |
| 8                                                                                                                                 | acetoacetate/ and (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*).ab,kf,ti.                                                                                   |
| 9                                                                                                                                 | Caprylates/ and (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*).ab,kf,ti.                                                                                     |
| 10                                                                                                                                | Triglycerides/ and (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*).ab,kf,ti.                                                                                  |
| 11                                                                                                                                | Butyrates/ and (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*).ab,kf,ti.                                                                                      |
| 12                                                                                                                                | (3-Hydroxybutyric Acid adj5 (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                                        |
| 13                                                                                                                                | (acetoacetate* adj5 (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                                                |
| 14                                                                                                                                | (beta hydroxybutyrate adj5 (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                                         |
| 15                                                                                                                                | ("beta hydroxybutyric acid" adj5 (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                                   |
| 16                                                                                                                                | ((caproic or caprate or caprylate or Caprylates or caprylic or capric or decanoic or decylic) adj5 (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti. |
| 17                                                                                                                                | (Triglyceride* adj5 (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                                                |
| 18                                                                                                                                | ((butanoic or butyrate\$1 or butyric) adj5 (acid* or diet* or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                         |
| 19                                                                                                                                | 1,3-butanediol.ab,kf,ti.                                                                                                                                                                                                                    |
| 20                                                                                                                                | (ketone adj1 supplement*).ab,kf,ti.                                                                                                                                                                                                         |
| 21                                                                                                                                | (paleo* adj5 (diet or fat or fats or carb or carbs or carbohydrate or carbohydrates or meal or meals or nutritional or protein*)).ab,kf,ti.                                                                                                 |
| 22                                                                                                                                | ((caveman or "cave man" or cave-man or hunter-gather or "hunter gather" or stone-age) and (diet or fat or fats or carb or carbs or carbohydrate or carbohydrates or protein*)).ab,kf,ti.                                                    |
| 23                                                                                                                                | (high-fat* and (((very-low or low* or restric*) adj2 (carb or carbs or carbohydrate or carbohydrates) and (diet or fat or fats or protein*))).ab,kf,ti.                                                                                     |
| 24                                                                                                                                | LCHF.ab,kf,ti.                                                                                                                                                                                                                              |
| 25                                                                                                                                | VLCHF.ab,kf,ti.                                                                                                                                                                                                                             |
| 26                                                                                                                                | LCKD.ab,kf,ti.                                                                                                                                                                                                                              |
| 27                                                                                                                                | VLCKD.ab,kf,ti.                                                                                                                                                                                                                             |
| 28                                                                                                                                | HFLC.ab,kf,ti.                                                                                                                                                                                                                              |
| 29                                                                                                                                | exp Psychotic Disorders/                                                                                                                                                                                                                    |
| 30                                                                                                                                | exp "schizophrenia spectrum and other psychotic disorders"/                                                                                                                                                                                 |
| 31                                                                                                                                | exp mood disorders/                                                                                                                                                                                                                         |
| 32                                                                                                                                | exp "Bipolar and Related Disorders"/                                                                                                                                                                                                        |
| 33                                                                                                                                | depressive disorder/                                                                                                                                                                                                                        |
| 34                                                                                                                                | Depression/                                                                                                                                                                                                                                 |
| 35                                                                                                                                | cyclothymic disorder/                                                                                                                                                                                                                       |
| 36                                                                                                                                | exp neurocognitive disorders/                                                                                                                                                                                                               |
| 37                                                                                                                                | cognition/                                                                                                                                                                                                                                  |
| 38                                                                                                                                | Hallucinations/                                                                                                                                                                                                                             |
| 39                                                                                                                                | Delusions/                                                                                                                                                                                                                                  |
| 40                                                                                                                                | ((cognitive or cognition) adj3 (decline\$1 or deficit\$1 or deteriorat* or disorder#1 or dysfunction\$1 or impairment\$1)).ab,kf,ti.                                                                                                        |
| 41                                                                                                                                | affective disorder*.ab,kf,ti.                                                                                                                                                                                                               |
| 42                                                                                                                                | psychos?s*.ab,kf,ti.                                                                                                                                                                                                                        |
| 43                                                                                                                                | psychotic*.ab,kf,ti.                                                                                                                                                                                                                        |

|    |                                                                                                                                                                     |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 44 | Psychiatr*.ab,kf,ti.                                                                                                                                                |
| 45 | schizo*.ab,kf,ti.                                                                                                                                                   |
| 46 | bipolar*.ab,kf,ti.                                                                                                                                                  |
| 47 | mania*.ab,kf,ti.                                                                                                                                                    |
| 48 | manic depress*.ab,kf,ti.                                                                                                                                            |
| 49 | major depress*.ab,kf,ti.                                                                                                                                            |
| 50 | Hallucinat*.ab,kf,ti.                                                                                                                                               |
| 51 | delusion*.ab,kf,ti.                                                                                                                                                 |
| 52 | ((chronic* or complex* or refractory or serious* or severe* or persistent* or "treatment resistant") adj3 (mental or psycho* or psychiatr* or disorder*)).ab,kf,ti. |
| 53 | neurocognitive disorder*.ab,kf,ti.                                                                                                                                  |
| 54 | dementia.ab,kf,ti.                                                                                                                                                  |
| 55 | mild cogniti* impair*.ab,kf,ti.                                                                                                                                     |
| 56 | neuropsychiatr*.ab,kf,ti.                                                                                                                                           |
| 57 | or/1-6                                                                                                                                                              |
| 58 | (or/7-18) and (keto* or ((very-low or low* or restric*) adj2 (carb or carbs or carbohydrate or carbohydrates)) or (high* adj5 (fat* or protein*))).ab,kf,ti.        |
| 59 | or/19-20                                                                                                                                                            |
| 60 | or/21-28                                                                                                                                                            |
| 61 | or/29-56                                                                                                                                                            |
| 62 | or/57-60                                                                                                                                                            |
| 63 | 61 and 62                                                                                                                                                           |
| 64 | (coconut* or "cocos nucifera" or copra or "Cocos nana Griffith" or "Cocos indica Royle").ab,kf,ti.                                                                  |
| 65 | 61 and 64                                                                                                                                                           |
| 66 | 63 or 65                                                                                                                                                            |

**Supplementary Table S2.** Study risk of bias assessment using the JBI Critical Appraisal Tools for case reports.

| Studies                                                                                 |   | Bellamy et al. 2025 | Bosworth et al. 2023 | Brown et al. 2018 | Calabrese et al. 2024 | Chmiel et al. 2022 | Chu et al. 2015 | Cox et al. 2019 | Dahlgren et al. 2018 | Lima et al. 2023 | Farah et al. 2014 | Gibas et al. 2021 a | Gibas et al. 2021 b | Horner et al. 2020 | Kraft et al. 2009 | Laurent 2024 | Laurent et al. 2025 (SCZAFF) | Laurent et al. 2025 (MDD) | Morrill et al. 2019 | Murray et al. 2025 | Nathan et al. 2017 | Newiss 2025 | Newport et al. 2015 | Palmer et al. 2017 | Palmer et al. 2019 | Pieklík et al. 2021 | Phelps et al. 2013 | Saraga et al. 2020 | Schlimme 2025 | Schreel et al. 2025 | Winje et al. 2024 | Yaroslavsky et al. 2002 |   |
|-----------------------------------------------------------------------------------------|---|---------------------|----------------------|-------------------|-----------------------|--------------------|-----------------|-----------------|----------------------|------------------|-------------------|---------------------|---------------------|--------------------|-------------------|--------------|------------------------------|---------------------------|---------------------|--------------------|--------------------|-------------|---------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------|---------------------|-------------------|-------------------------|---|
| Assessment Criteria                                                                     |   |                     |                      |                   |                       |                    |                 |                 |                      |                  |                   |                     |                     |                    |                   |              |                              |                           |                     |                    |                    |             |                     |                    |                    |                     |                    |                    |               |                     |                   |                         |   |
| 1. Were patient’s demographic characteristics clearly described?                        | N | Y                   | Y                    | Y                 | Y                     | N                  | Y               | Y               | Y                    | Y                | Y                 | N                   | N                   | Y                  | Y                 | Y            | N                            | N                         | Y                   | Y                  | N                  | N           | Y                   | Y                  | Y                  | Y                   | Y                  | Y                  | N             | Y                   | N                 | Y                       |   |
| 2. Was the patient’s history clearly described and presented as a timeline?             | Y | Y                   | Y                    | Y                 | Y                     | Y                  | Y               | N               | Y                    | Y                | Y                 | N                   | N                   | Y                  | Y                 | Y            | Y                            | Y                         | Y                   | Y                  | N                  | Y           | Y                   | Y                  | Y                  | Y                   | Y                  | Y                  | Y             | Y                   | N                 | Y                       | Y |
| 3. Was the current clinical condition of the patient on presentation clearly described? | Y | Y                   | Y                    | Y                 | Y                     | Y                  | Y               | Y               | Y                    | Y                | Y                 | Y                   | Y                   | Y                  | Y                 | Y            | Y                            | Y                         | Y                   | Y                  | N                  | Y           | Y                   | Y                  | Y                  | Y                   | Y                  | Y                  | Y             | Y                   | Y                 | Y                       | Y |
| 4. Were diagnostic tests or assessment methods and the results clearly described?       | Y | Y                   | Y                    | Y                 | Y                     | Y                  | Y               | Y               | Y                    | Y                | Y                 | Y                   | Y                   | Y                  | N                 | Y            | Y                            | Y                         | Y                   | Y                  | Y                  | N           | Y                   | Y                  | N                  | Y                   | Y                  | Y                  | N             | N                   | Y                 | Y                       | N |
| 5. Was the intervention(s) or treatment procedure(s) clearly described?                 | Y | Y                   | N                    | Y                 | Y                     | Y                  | Y               | Y               | N                    | Y                | Y                 | N                   | N                   | Y                  | Y                 | Y            | Y                            | Y                         | Y                   | Y                  | Y                  | Y           | Y                   | Y                  | N                  | Y                   | Y                  | Y                  | N             | Y                   | Y                 | Y                       | Y |
| 6. Was the post-intervention clinical condition clearly described?                      | Y | Y                   | Y                    | Y                 | Y                     | Y                  | Y               | Y               | Y                    | Y                | Y                 | Y                   | Y                   | Y                  | Y                 | Y            | Y                            | Y                         | Y                   | Y                  | Y                  | Y           | Y                   | Y                  | Y                  | Y                   | Y                  | Y                  | Y             | Y                   | Y                 | Y                       | Y |
| 7. Were adverse events (harms) or unanticipated events                                  | N | N                   | N                    | Y                 | Y                     | Y                  | N               | N               | N                    | N                | N                 | N                   | N                   | N                  | N                 | N            | Y                            | N                         | N                   | Y                  | N                  | Y           | N                   | N                  | N                  | N                   | Y                  | Y                  | N             | N                   | N                 | N                       | N |

|                                                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| identified and described?                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8. Does the case report provide takeaway lessons? | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |   |   |
| Risk of Bias                                      | L | L | L | L | L | L | L | L | L | L | M | M | L | L | L | L | L | L | L | M | L | L | L | M | L | L | M | M | L | L | L |

Y Yes; N No; U Unclear; N/A Not Applicable; L Low; M Moderate

**Supplementary Table S3.** Study risk of bias assessment using the JBI Critical Appraisal Tools for randomized controlled trials.

| Assessment<br>Criteria                                                                                                                                                                   | Studies         |                 |                 |                      |                  |                  |                     |                      |                 |                       |                       |                  |                       |                       |                      |                  |                 |                              |                              |                      |                     |                   |                      |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|----------------------|------------------|------------------|---------------------|----------------------|-----------------|-----------------------|-----------------------|------------------|-----------------------|-----------------------|----------------------|------------------|-----------------|------------------------------|------------------------------|----------------------|---------------------|-------------------|----------------------|----------------|
|                                                                                                                                                                                          | Abe et al. 2017 | Abe et al. 2020 | Abe et al. 2022 | Buchholz et al. 2024 | Chan et al. 2017 | Duan et al. 2025 | Fortier et al. 2021 | Fernando et al. 2023 | Gao et al. 2026 | Henderson et al. 2009 | Henderson et al. 2020 | Juby et al. 2022 | Krikorian et al. 2012 | Krikorian et al. 2019 | Morrison et al. 2020 | Neth et al. 2020 | Ota et al. 2019 | de la Rubia Ortí et al. 2017 | de la Rubia Ortí et al. 2018 | Phillips et al. 2021 | Rebello et al. 2015 | Reger et al. 2004 | Sheffler et al. 2023 | Xu et al. 2020 |
| 1. Was true randomization used for assignment of participants to treatment groups?                                                                                                       | U               | U               | U               | Y                    | Y                | Y                | Y                   | U                    | Y               | Y                     | U                     | Y                | U                     | Y                     | Y                    | U                | U               | Y                            | Y                            | Y                    | Y                   | U                 | U                    | Y              |
| 2. Was allocation to treatment groups concealed?                                                                                                                                         | Y               | Y               | Y               | U                    | Y                | U                | U                   | Y                    | Y               | U                     | U                     | U                | U                     | U                     | Y                    | U                | U               | Y                            | U                            | U                    | U                   | U                 | U                    | U              |
| 3. Were treatment groups similar at the baseline?                                                                                                                                        | Y               | Y               | Y               | Y                    | U                | Y                | Y                   | U                    | Y               | Y                     | Y                     | Y                | Y                     | Y                     | Y                    | N                | U               | U                            | U                            | N                    | U                   | U                 | U                    | Y              |
| 4. Were participants blind to treatment assignment?                                                                                                                                      | N               | N               | Y               | N                    | Y                | Y                | Y                   | Y                    | Y               | Y                     | Y                     | Y                | U                     | U                     | N                    | U                | Y               | U                            | N                            | N                    | Y                   | Y                 | U                    | Y              |
| 5. Were those delivering the treatment blind to treatment assignment?                                                                                                                    | N               | N               | N               | N                    | Y                | Y                | U                   | U                    | N               | Y                     | Y                     | Y                | U                     | U                     | N                    | U                | U               | N                            | N                            | N                    | Y                   | N                 | U                    | U              |
| 6. Were treatment groups treated identically other than the intervention of interest?                                                                                                    | Y               | Y               | Y               | Y                    | Y                | Y                | Y                   | Y                    | Y               | Y                     | Y                     | Y                | Y                     | Y                     | Y                    | Y                | Y               | Y                            | Y                            | Y                    | Y                   | Y                 | N                    | Y              |
| 7. Were outcome assessors blind to treatment assignment?                                                                                                                                 | Y               | N               | N               | Y                    | Y                | Y                | U                   | Y                    | U               | Y                     | Y                     | Y                | U                     | U                     | N                    | U                | Y               | U                            | Y                            | Y                    | Y                   | Y                 | U                    | Y              |
| 8. Were outcomes measured in the same way for treatment groups?                                                                                                                          | Y               | Y               | Y               | Y                    | Y                | Y                | Y                   | Y                    | Y               | Y                     | Y                     | Y                | Y                     | Y                     | Y                    | Y                | Y               | Y                            | Y                            | Y                    | Y                   | Y                 | Y                    | Y              |
| 9. Were outcomes measured in a reliable way?                                                                                                                                             | U               | U               | Y               | U                    | U                | U                | U                   | U                    | Y               | Y                     | U                     | U                | U                     | U                     | Y                    | U                | U               | U                            | Y                            | Y                    | U                   | Y                 | U                    | U              |
| 10. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed?                                                    | Y               | N               | Y               | Y                    | N                | Y                | N                   | Y                    | Y               | Y                     | Y                     | Y                | U                     | Y                     | Y                    | N                | Y               | U                            | Y                            | Y                    | N                   | Y                 | Y                    | Y              |
| 11. Were participants analysed in the groups to which they were randomized?                                                                                                              | N               | Y               | N               | Y                    | N                | Y                | N                   | N                    | Y               | Y                     | Y                     | Y                | U                     | N                     | Y                    | N                | Y               | U                            | Y                            | Y                    | N                   | Y                 | Y                    | N              |
| 12. Was appropriate statistical analysis used?                                                                                                                                           | Y               | Y               | Y               | Y                    | Y                | Y                | Y                   | Y                    | Y               | Y                     | Y                     | Y                | Y                     | Y                     | Y                    | Y                | Y               | Y                            | Y                            | Y                    | N                   | Y                 | Y                    | Y              |
| 13. Was the trial design appropriate and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial? | Y               | Y               | Y               | Y                    | Y                | Y                | Y                   | Y                    | Y               | Y                     | Y                     | Y                | Y                     | Y                     | Y                    | Y                | Y               | Y                            | Y                            | Y                    | Y                   | Y                 | Y                    | Y              |
| Risk of Bias                                                                                                                                                                             | M               | M               | M               | M                    | M                | L                | M                   | M                    | L               | L                     | L                     | L                | H                     | M                     | L                    | H                | M               | H                            | M                            | M                    | M                   | M                 | H                    | M              |

Y Yes; N No; U Unclear; N/A Not Applicable; L Low; M Moderate

**Supplementary Table S4.** Study risk of bias assessment using the JBI Critical Appraisal Tools for quasi-experimental studies.

| <div>Studies</div> <div>Assessment Criteria</div>                                                                                           | Bellamy 2026 | Brietzke et al. 2025 | Decker et al. 2025 | Danan et al. 2022 | Gandotra et al. 2014 | Gilbert-Jaramillo et al. 2018 | Kim et al. 2019 | Kunin 1976 | Maynard et al. 2013 a | Needham et al. 2023 | Ohnuma et al. 2017 | Ota et al. 2019 | Pacheco et al. 1965 | Sethi et al. 2024 | Sheffler et al. 2022 | Taylor et al. 2018 |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------|--------------------|-------------------|----------------------|-------------------------------|-----------------|------------|-----------------------|---------------------|--------------------|-----------------|---------------------|-------------------|----------------------|--------------------|
| 1. Is it clear in the study what is the “cause” and what is the “effect” (i.e. there is no confusion about which variable comes first)?     | Y            | Y                    | Y                  | Y                 | Y                    | Y                             | Y               | Y          | Y                     | Y                   | Y                  | Y               | Y                   | Y                 | Y                    | Y                  |
| 2. Was there a control group?                                                                                                               | N            | N                    | N                  | N                 | N                    | N                             | Y               | N          | N                     | N                   | N                  | N               | N                   | N                 | N                    | N                  |
| 3. Were participants included in any comparisons similar?                                                                                   | N            | Y                    | Y                  | Y                 | Y                    | Y                             | N               | Y          | Y                     | Y                   | N                  | Y               | Y                   | Y                 | Y                    | Y                  |
| 4. Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest? | Y            | Y                    | Y                  | Y                 | Y                    | Y                             | Y               | Y          | Y                     | Y                   | Y                  | Y               | Y                   | Y                 | Y                    | Y                  |
| 5. Were there multiple measurements of the outcome, both pre and post the intervention/exposure?                                            | Y            | Y                    | Y                  | Y                 | Y                    | Y                             | Y               | Y          | Y                     | Y                   | Y                  | Y               | Y                   | Y                 | Y                    | Y                  |
| 6. Were the outcomes of participants included in any comparisons measured in the same way?                                                  | Y            | Y                    | Y                  | Y                 | Y                    | Y                             | Y               | U          | Y                     | Y                   | Y                  | Y               | Y                   | Y                 | Y                    | Y                  |
| 7. Were outcomes measured in a reliable way?                                                                                                | Y            | Y                    | U                  | U                 | Y                    | Y                             | U               | U          | U                     | U                   | U                  | U               | N                   | Y                 | Y                    | Y                  |
| 8. Was follow-up complete and if not, were differences between groups in terms of their follow-up adequately described and analyzed?        | Y            | Y                    | Y                  | Y                 | Y                    | Y                             | Y               | Y          | Y                     | N                   | Y                  | Y               | Y                   | Y                 | Y                    | Y                  |
| 9. Was appropriate statistical analysis used?                                                                                               | Y            | Y                    | Y                  | Y                 | Y                    | Y                             | Y               | U          | Y                     | Y                   | Y                  | Y               | U                   | Y                 | Y                    | Y                  |
| Risk of Bias                                                                                                                                | M            | L                    | L                  | L                 | L                    | L                             | L               | M          | L                     | M                   | M                  | L               | M                   | L                 | L                    | L                  |

Y Yes; N No; U Unclear; N/A Not Applicable; L Low; M Moderate

**Supplementary Table S5.** Study risk of bias assessment using the JBI Critical Appraisal Tools for cross-sectional studies.

| Assessment<br>Criteria | Studies                                                                     | Bellamy et<br>al. 2024 | Campbell<br>et al. 2019 | Newport<br>2024 |
|------------------------|-----------------------------------------------------------------------------|------------------------|-------------------------|-----------------|
|                        | 1. Were the criteria for inclusion in the sample clearly defined?           | Y                      | N                       | N               |
|                        | 2. Were the study subjects and the setting described in detail?             | Y                      | N                       | Y               |
|                        | 3. Was the exposure measured in a valid and reliable way?                   | N                      | N                       | N               |
|                        | 4. Were objective, standard criteria used for measurement of the condition? | N                      | N                       | N               |
|                        | 5. Were confounding factors identified?                                     | N                      | Y                       | N               |
|                        | 6. Were strategies to deal with confounding factors stated?                 | N                      | N                       | N               |
|                        | 7. Were the outcomes measured in a valid and reliable way?                  | N                      | N                       | N               |
|                        | 8. Was appropriate statistical analysis used?                               | Y                      | Y                       | Y               |
| Risk of Bias           |                                                                             | H                      | H                       | H               |

**Y** Yes; **N** No; **U** Unclear; **N/A** Not Applicable; **H** High