**APPENDICES**

**Appendix 1**. PRISMA checklist

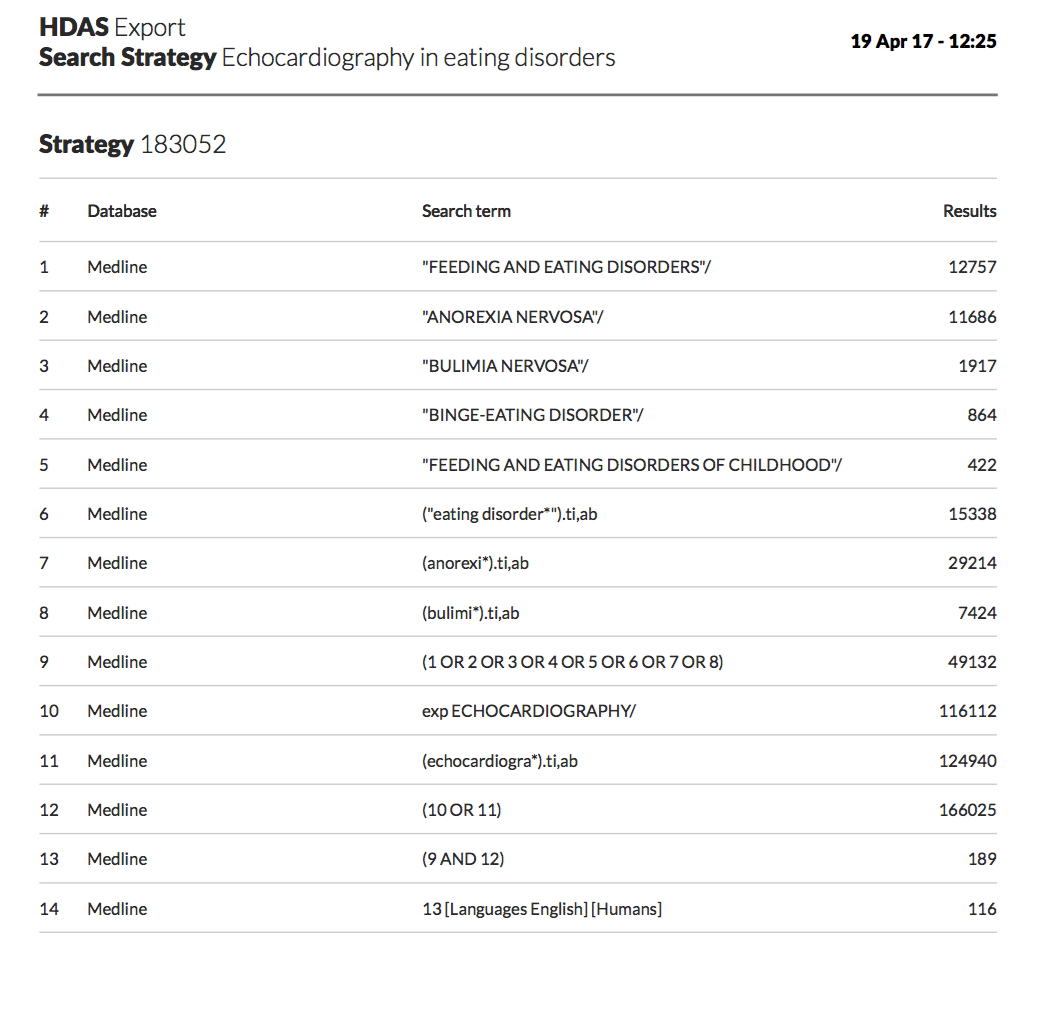
|  |  |  |
| --- | --- | --- |
| Section and topic | Item No | Checklist item |
| ADMINISTRATIVE INFORMATION | | |
| Title: |  |  |
| Identification | 1a | Identify the report as a protocol of a systematic review #*1* |
| Update | 1b | If the protocol is for an update of a previous systematic review, identify as such *N/A* |
| Registration | 2 | If registered, provide the name of the registry (such as PROSPERO) and registration number #*2* |
| Authors: |  |  |
| Contact | 3a | Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author #*1* |
| Contributions | 3b | Describe contributions of protocol authors and identify the guarantor of the review #*19* |
| Amendments | 4 | If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments |
| Support: |  |  |
| Sources | 5a | Indicate sources of financial or other support for the review #*19* |
| Sponsor | 5b | Provide name for the review funder and/or sponsor *N/A* |
| Role of sponsor or funder | 5c | Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol *N/A* |
| INTRODUCTION | | |
| Rationale | 6 | Describe the rationale for the review in the context of what is already known *#3* |
| Objectives | 7 | Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) *#4* |
| METHODS | | |
| Eligibility criteria | 8 | Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review *#4* |
| Information sources | 9 | Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage *#4* |
| Search strategy | 10 | Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated *Appendix 2* |
| Study records: |  |  |
| Data management | 11a | Describe the mechanism(s) that will be used to manage records and data throughout the review *#5* |
| Selection process | 11b | **State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)** *#5* |
| Data collection process | 11c | Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators *#5* |
| Data items | 12 | List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications *#5* |
| Outcomes and prioritization | 13 | List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale *#5* |
| Risk of bias in individual studies | 14 | Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis *#5* |
| Data synthesis | 15a | Describe criteria under which study data will be quantitatively synthesised *#6* |
| 15b | If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I2, Kendall’s τ) *#5-6* |
| 15c | Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression) *#6* |
| 15d | If quantitative synthesis is not appropriate, describe the type of summary planned *N/A* |
| Meta-bias(es) | 16 | Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies) *#6* |
| Confidence in cumulative evidence | 17 | Describe how the strength of the body of evidence will be assessed (such as GRADE) *#6, Supplementary figures* |

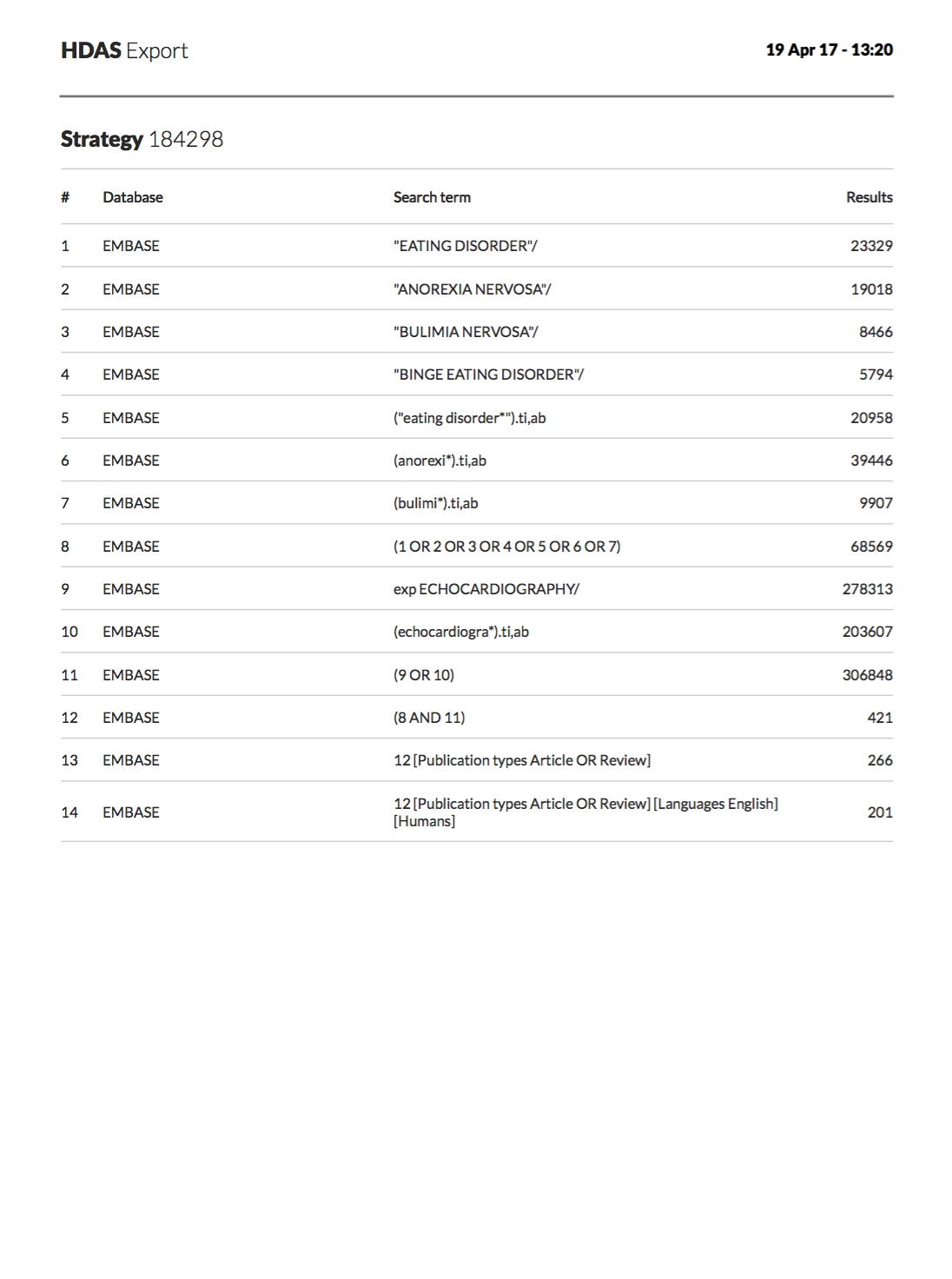
**PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol\***

**\*It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

*From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647*

**Appendix 2**. Search strategy





**Appendix 3**. Quality Appraisal

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Kuwabara et al, 2018 [8]** | **Billeci et al, 2017 [9]** | **Morris et al, 2017 [10]** | **Escudero et al, 2016 [11]** | **Lelli et al, 2015 [12]** | **Kastner et al 2012 [13]** | **DiVasta et al, 2010 [14]** | **Docx et al, 2010 [15]** | **Ülger et al, 2006 [16]** | **Galetta et al, 2005 [17]** | **Olivares et al, 2005 [18]** | **Franzoni et al, 2003 [19]\*** | **Galetta et al, 2002 [20]\*** | **Galetta et al, 2003 [21]** | **Mont et al, 2003 [22]** | **Ramacciotti et al, 2003 [23]** | **Romano et al, 2003 [24]** | **Vázquez et al, 2003 [25]** | **Eidem et al, 2001 [26]** | **Frölich et al, 2001 [27]** | **de Simone et al, 1994 [28]** | **Meyers et al, 1987 [29]** | **Oka et al, 1987 [30]** |
| **Type of study** | CS | CC | RC | CC | CC | CC | RC | LO | LO | CC | CC | CC | CC | CC | CS | CC | CC | CC | RC | CS | CC | CC | CS |
| **Selection** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **BMI represents AN Max \*\* Mean and SD < 17** | \* | \*\* | \* | \* | \* | \* | \* | \* | \*\* | \*\* | \* | \* | \* | \*\* | \* | \*\* | \* | \* | \* | \*\* | \* | \*\* | \*\* |
| **representative ‘control’ Max \*\* (\*\* healthy thin mean and SD <20, \* BMI >20); Not healthy/not stated 0 stars** | N/A | \* | \* | \* | \* | \* | N/A | N/A | \* | \*\* | \* | \* | \*\* | \* | N/A | \*\* | \* | \* | \* | N/A | \*\* | \* | N/A |
| **Comparability of groups Y/N \*** | N/A | \* | \* | \* | \* | \* | N/A | N/A | \* | \* | \* | \* | \* | \* | N/A | \* |  |  | \* | N/A |  | \* |  |
| **Outcome - quality of echo data** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Good - 1) appropriate guidelines; 2) echo trained; 3) effort to make data unified** |  |  | \*\*\* |  |  |  |  |  |  | \*\*\* |  |  |  |  |  |  | \*\*\* |  |  |  |  | \*\*\* |  |
| **Average - two of the above** |  |  |  | \*\* |  |  |  |  |  |  | \*\* | \*\* | \*\* |  |  |  |  |  |  |  | \*\* |  | \*\* |
| **Poor - one of the above** | \* | \* |  |  | \* | \* | \* | \* | \* |  |  |  |  | \* | \* |  |  | \* | \* | \* |  |  |  |
| **Loss to f/up <10% \* (or same non response rate in both groups of a CC)** |  | \* |  |  |  |  |  | \* | \* |  | \* |  |  |  | \* |  |  |  |  | \* |  |  |  |
| **Score:** | 2 | 6 | 6 | 5 | 4 | 4 | 2 | 3 | 6 | 8 | 6 | 5 | 6 | 5 | 3 | 5 | 5 | 3 | 4 | 4 | 5 | 7 | 4 |

Risk of bias in studies was assessed by using a modified version of the Newcastle-Ottawa Quality Assessment Scale.

The present review included studies that focused on patients with anorexia nervosa. In the selection category, representativeness of anorexia and control populations was determined by BMI. Risk of bias was assessed using the same scoring system but the maximum achievable points depended on the type of study. The case-control (CC) and retrospective comparative studies (RC) were scored out of 9 and the case-series (CS) and longitudinal observational studies (LO) were scored out of 7.

For the CC and RC 6 or more points was considered to be at low risk of bias, studies that scored 4-5 points to be at moderate risk, and those with less than 4 points to be at high risk of bias. CS and LO were at low risk of bias if their score was 4 or more, at moderate risk if they scored 3 points, and at high risk of bias with scores below 3.

**Appendix 4**. Echocardiographic methodologies

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Author** | **LVM** | **LV dimensions** | **LV systolic function** | **LV diastolic function** | **MVP** | **PE** |
| Kuwabara et al, 2018 [8] | Devereux formula: LVM = 0.8 x {1.04(IVSd + LVIDd + PWTd)3 - LVIDd3} + 0.6 (g) | M mode | N/S | N/A | N/A | N/S |
| Billeci et al, 2017 [9] | Devereux | M mode ASE | M mode FS according to ASE | N/S | N/S | N/S |
| Morris et al, 2017 [10] | Devereux | M mode ASE | M mode FS and EF (ASE) | N/A | N/A | N/S |
| Escudero et al, 2016 [11] | 1.05(LVEDD + 2 x LVPWDd)3 - LVED3 | M mode | M mode FS 100 x (LVEDD - LVESD)/LVEDD | Pulsed doppler transmitral velocities in A4C | N/S | N/S |
| Lelli et al, 2015 [12] | N/S | N/S | N/S | N/S | N/S | N/S |
| Kastner et al 2012 [13] | Penn convention: 1.05 (LVED + LVPWT + IVSWT)3 - LVED3 -14g | M mode (ASE) | M mode FS | N/A | N/A | Anterior and posterior |
| DiVasta et al, 2010 [14] | Biplane modified Simpson rule | Stress velocity analysis | Stress velocity analysis | N/A | N/A | N/A |
| Docx et al, 2010 [15] | Devereux | N/A | N/A | N/A | N/A | Diastole and systole |
| Ülger et al, 2006 [16] | Devereux | M mode | M mode | N/A | N/A | N/S |
| Galetta et al, 2005 [17] | Penn convention | M mode ASE | M mode ASE | Pulsed doppler transmitral velocities in A4C | N/A | N/A |
| Olivares et al, 2005 [18] | Devereux | M mode ASE | M mode ASE | N/A | N/S | N/A |
| **Author** | **LVM** | **LV dimensions** | **LV systolic function** | **LV diastolic function** | **MVP** | **PE** |
| Franzoni et al, 2003 [19]\* | Penn convention | M mode ASE | Modified ellipsoidal model of the midwall | Pulsed doppler transmitral velocities in A4C | N/A | N/A |
| Galetta et al, 2002 [20]\* | - | - | - | - | - | - |
| Galetta et al, 2003 [21] | Devereux | M mode ASE | Modified ellipsoidal model | Pulsed doppler transmitral velocities in A4C | N/A | N/A |
| Mont et al, 2003 [22] | Penn convention | M mode ASE | M mode ASE | N/S | N/A | N/A |
| Ramacciotti et al, 2003 [23] | N/S | N/A | N/S | N/A | N/A | N/A |
| Romano et al, 2003 [24] | Devereux | M mode ASE | M mode ASE | N/A | N/A | N/A |
| Vázquez et al, 2003 [25] | Devereux | M mode ASE | M mode ASE | N/A | N/A | N/A |
| Eidem et al, 2001 [26] | N/S | M mode | M mode | N/S | N/A | N/A |
| Frölich et al, 2001 [27] | N/A | N/A | N/A | N/A | N/A | Anterior and posterior |
| de Simone et al, 1994 [28] | Devereux | M mode ASE | Midwall FS | Pulsed doppler transmitral velocities in A4C | N/S | N/A |
| Meyers et al, 1987 [29] | N/A | M mode ASE | N/A | N/A | Superior systolic displacement of the mitral leaflets | N/A |
| Oka et al, 1987 [30] | N/A | M mode | M mode | N/A | Mitral leaflet movement into the left atrial cavity (Weyman criteria) | N/A |

**Abbreviations**: LVM left ventricular mass; MVP mitral valve prolapse; PE pericardial effusion; N/S not stated; N/A not applicable; ASE American Society of Echocardiography; FS fractional shortening; EF ejection fraction; A4C apical four chamber; 2D two dimensional