

## Review

# A Scoping Review of the Prevalence of Eating Disorders in Spain

Néstor Benítez Brito <sup>1,2,\*</sup>, Francisco Moreno Redondo <sup>1</sup>, Berta Pinto Robayna <sup>1</sup> , Jesús De las Heras Roge <sup>1</sup> , Yolanda Ramallo Fariña <sup>3,4</sup>  and Carlos Diaz Romero <sup>1,2</sup>

<sup>1</sup> Nutrition and Bromatology Area, Department of Chemical Engineering and Pharmaceutical Technology, Faculty of Pharmacy, University of La Laguna, 38200 San Cristóbal de La Laguna, Spain; fran.mr091@gmail.com (F.M.R.); extbpintoro@ull.edu.es (B.P.R.); jherasro@ull.edu.es (J.D.I.H.R.); cdiaz@ull.edu.es (C.D.R.)

<sup>2</sup> Nutrition, Health and Food Research Group (NAYS), University of La Laguna, 38200 San Cristóbal de La Laguna, Spain

<sup>3</sup> Canary Islands Health Research Institute Foundation (FIISC), 38004 Santa Cruz de Tenerife, Spain; yolanda.ramallofariña@sescs.es

<sup>4</sup> Network for Research on Chronicity, Primary Care, and Health Promotion (RICAPPS), 38004 Santa Cruz de Tenerife, Spain

\* Correspondence: nbenitez@ull.edu.es

**Abstract:** Introduction: Eating disorders (EDs) are mental health illnesses with a multifactorial origin. At present, no review of indexed publications studying their prevalence in Spain is available. Material and methods: A scoping review (PROSPERO -CRD42019140884-) was carried out through systematic searches (MEDLINE, EMBASE and PsycINFO) until January 2022. Papers published in Spanish/English analysing the prevalence of EDs in Spain (population < 65 years) were selected. Results: A total of 766 articles were identified (186 eliminated as duplicates). A total of 580 articles were analysed on the basis of title and abstract, and 67 articles were selected for full-text analysis. A total of 37 studies analysed the prevalence of EDs in Spain. Conclusions: This is the first scoping review to analyse the prevalence of EDs in Spain. Puberty and adolescence are the most extensively studied stages. There is a high heterogeneity in the use of ED screening tools and a paucity of information on diagnostic tools.

**Keywords:** eating disorders; eating and food ingestion disorders; anorexia nervosa; bulimia; binge eating disorder



**Citation:** Benítez Brito, N.; Moreno Redondo, F.; Pinto Robayna, B.; De las Heras Roge, J.; Ramallo Fariña, Y.; Diaz Romero, C. A Scoping Review of the Prevalence of Eating Disorders in Spain. *Nutrients* **2024**, *16*, 1513. <https://doi.org/10.3390/nu16101513>

Academic Editor: Hubertus Himmerich

Received: 18 April 2024

Revised: 10 May 2024

Accepted: 13 May 2024

Published: 17 May 2024



**Copyright:** © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Eating disorders (EDs) are mental health illnesses with medical, nutritional, psychiatric and family complications [1]. Their origin is multifactorial, involving genetic, biological, psychological and socio-cultural factors.

The diagnostic criteria for these diseases are described in the Diagnostic and Statistical Manual of Mental Disorders in its fifth revision (DSM-5) [2]. This edition is characterised by a new name for all these illnesses (EDs) and the partial modification of certain diagnostic criteria for anorexia nervosa (AN) and bulimia nervosa (BN). In addition, new pathologies have been added, such as binge eating disorder, pica, rumination disorder, avoidant restrictive food intake disorder (ARFID) and other specified feeding or eating disorders (OSFEDs) [2]. The changes introduced in the criteria, as well as the new pathologies, arise from the need to specify new diagnoses and establish more specific treatments, thus improving the possibility of knowing the diagnostic distribution of EDs.

Furthermore, these diseases are also classified within the eleventh revision of the International Classification of Diseases (ICD-11) [3]. However, DSM-5 coding is used to a greater extent, as it allows for more specific diagnoses of EDs [4].

In general, among the mental disorders described in the literature, EDs have the highest morbidity and mortality rate [5], with age at diagnosis being the greatest pre-

dictor of mortality in these patients [6]. In particular, AN is the mental disorder with the highest mortality rate among all disorders described to date [7]. In recent decades, an increasing prevalence has been observed among young people and adults in developed countries, which has increased due to the coronavirus disease 2019 (COVID-19) pandemic [8]. However, despite its high morbidity and mortality, prevalence data on EDs in Spain are unknown. This fact justifies the importance and interest of knowing the publications made to date on the prevalence of EDs in the Spanish population.

## 2. Methodology

A scoping review was conducted through the literature, in accordance with the methodology developed by the Cochrane Collaboration [9]. The protocol was initially registered in PROSPERO (CRD42019140884). The following databases were systematically searched for articles published up to 2 January 2022: MEDLINE, EMBASE and PsycINFO.

The search strategy used was initially designed for MEDLINE (OvidSP), combining controlled vocabulary together with free text terms around the terms: “Feeding and Eating Disorders” or “Anorexia” or “Bulimia” or “Binge-Eating Disorder” or “Night Eating Syndrome” or “Osfe” or “Other Specified Feeding and Eating Disorder” or “Eating Disorder Not Otherwise Specified” or “EDNOS” or “Pica” or “Rumination Syndrome” or “Avoidant Restrictive Food Intake Disorder” or “Eating Disorder”. This strategy was subsequently adapted to the other databases consulted.

The bibliographic references obtained from each database were imported into a file in Reference Manager Edition Version 10 (Thomson Scientific, Philadelphia, PA, USA) to eliminate duplicate references. This file was then exported to a Microsoft Excel 2013 sheet (Microsoft Corporation, Redmond, WA, USA) where the removal of duplicate references could be completed and study selection was then performed.

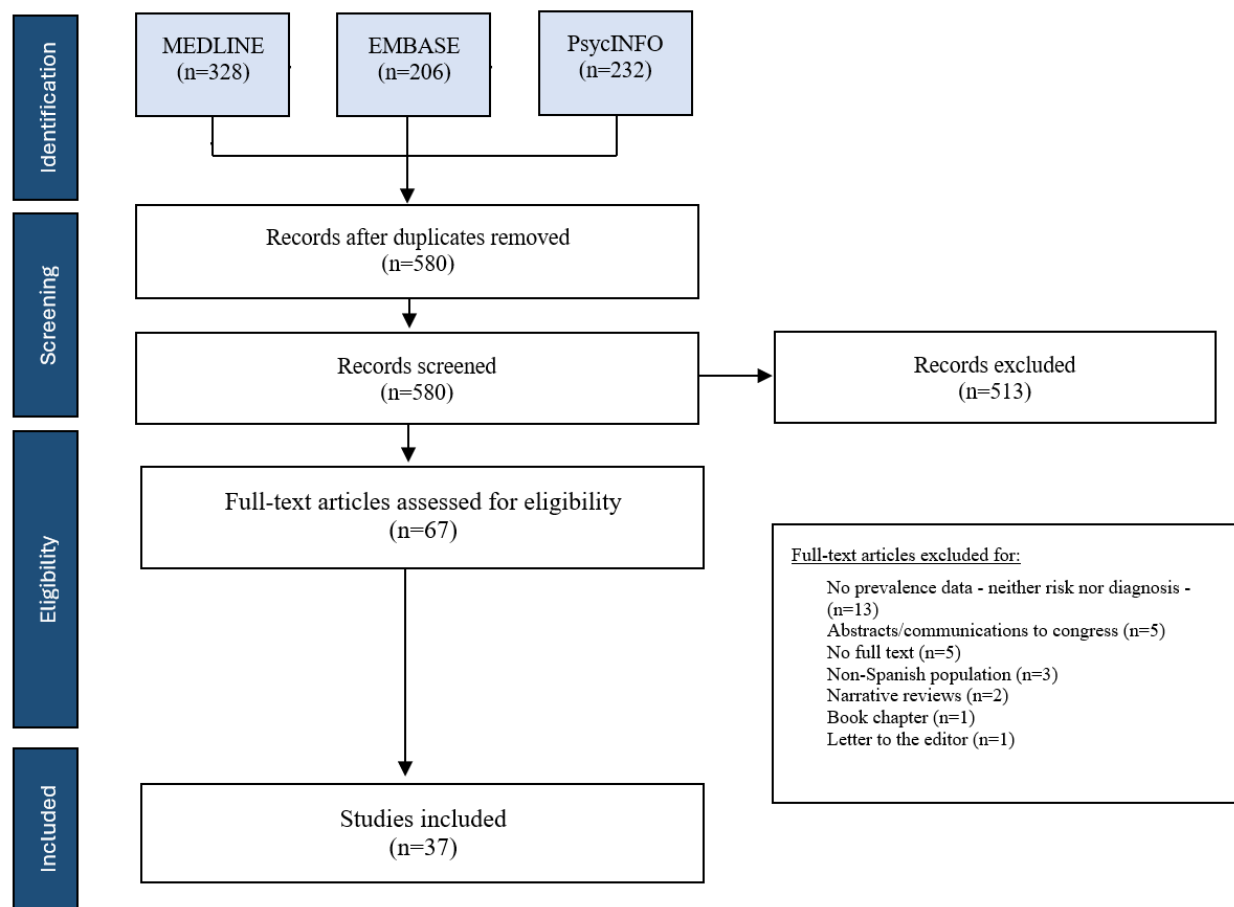
The search for published studies was complemented by a manual examination of the bibliographic lists of the articles included. We selected papers published in Spanish and English that analysed the prevalence of EDs in the population under 65 years of age in Spain. We excluded those studies that focused on populations with specific pathologies (obesity, diabetes mellitus, cerebral palsy and intestinal diseases, among others) and specific study populations in athletes.

Two reviewers independently and in parallel peer-selected the studies by reading the titles and abstracts located through the literature search. Articles selected as relevant were analysed in full text by the two reviewers independently, who classified them as included or excluded according to the specified selection criteria. The reviewers contrasted their opinions and, where there were doubts or discrepancies, these were discussed for resolution. Where there was no consensus, another reviewer was consulted and, where necessary, a fourth reviewer was consulted. Discussions and agreements were documented.

Data extraction from the selected studies was carried out using an Excel spreadsheet (Microsoft®) designed ad hoc. In summary, the data extracted were those related to the identification of the study (authors, date of publication, community where the study was conducted, funding, etc.), the design and methodology (objective, design, sample characteristics, screening and assessment instruments, type of analysis, perspective, sources of information used, etc.) and the results of the study, with special attention to its variability.

## 3. Results

A total of 766 articles were identified in the different databases as shown in the flow chart (Figure 1). Of the total number of included studies, 186 were eliminated due to duplicates, resulting in a total of 580 articles for analysis based on reading the title and abstract. Sixty-seven articles were selected for full-text analysis, with 37 articles meeting the selection criteria (30 studies providing point prevalence data and 6 period studies). The reasons for exclusion are outlined in Table 1.



**Figure 1.** Identification of studies included in the analysis.

**Table 1.** List of articles excluded by reason in full-text analysis.

| Study (ID)                              | Year | Reason for Exclusion                                   |
|-----------------------------------------|------|--------------------------------------------------------|
| Serra, R., et al. (ID 40)               | 2019 | No data on prevalence, risk or diagnosis are provided. |
| Larrañaga, A., et al. (ID 191)          | 2012 | No data on prevalence, risk or diagnosis are provided. |
| Castro Fornieles, J., et al. (ID 211)   | 2010 | No data on prevalence, risk or diagnosis are provided. |
| Lahortiga Ramos, F., et al. (ID 265)    | 2005 | No data on prevalence, risk or diagnosis are provided. |
| Esparó, G., et al. (ID 269)             | 2004 | No data on prevalence, risk or diagnosis are provided. |
| Paniagua Repetto, H., et al. (ID 274)   | 2003 | No data on prevalence, risk or diagnosis are provided. |
| Lameiras Fernández, M., et al. (ID 282) | 2002 | No data on prevalence, risk or diagnosis are provided. |
| Otero Rodríguez, J., et al. (ID 289)    | 2002 | No data on prevalence, risk or diagnosis are provided. |
| Moreno Redondo, F.J., et al. (ID 357)   | 2019 | Congress abstracts/communications.                     |
| Ruiz-Lázaro, P.M., et al. (ID 388)      | 2014 | Congress abstracts/communications.                     |
| Lázaro, Y., et al. (ID 391)             | 2015 | Congress abstracts/communications.                     |
| Ruiz-Lázaro, P.M., et al. (ID 413)      | 2013 | Congress abstracts/communications.                     |
| Larrañaga, A., et al. (ID 441)          | 2012 | No data on prevalence, risk or diagnosis are provided. |
| Preti, A., et al. (ID 451)              | 2009 | Non-Spanish population.                                |
| Nuño Gutiérrez, B.L., et al. (ID 453)   | 2009 | Non-Spanish population.                                |
| Julián Viñals, R., et al. (ID 492)      | 2002 | Letter to the editor.                                  |
| Toro, J., et al. (ID 503)               | 2000 | Narrative review.                                      |
| Ruiz-Lázaro, P.M. (ID 513)              | 1998 | Not available in full text.                            |
| Ruiz Lázaro, P.M. (ID 527)              | 2001 | Not available in full text.                            |
| Ballester Arnal, R., et al. (ID 570)    | 2000 | No data on prevalence, risk or diagnosis are provided. |
| Peláez Fernández, M.A., et al. (ID 590) | 2007 | Congress abstracts/communications.                     |
| Norris, M.L., et al. (ID 592)           | 2011 | Book chapter.                                          |

Table 1. Cont.

| Study (ID)                            | Year | Reason for Exclusion                                   |
|---------------------------------------|------|--------------------------------------------------------|
| Valero Solis, S., et al. (ID 608)     | 2019 | No data on prevalence, risk or diagnosis are provided. |
| Marchi, M., et al. (ID 635)           | 1989 | Non-Spanish population.                                |
| Jiménez, M., et al. (ID 638)          | 2004 | No data on prevalence, risk or diagnosis are provided. |
| Ruiz-Lázaro, P.M., et al. (ID 641)    | 2001 | Not available in full text.                            |
| Ruiz-Lázaro, P.M., et al. (ID 663)    | 2005 | Not available in full text.                            |
| Peláez Fernández, M., et al. (ID 671) | 2005 | Narrative review.                                      |
| Gómez-Peresmitré, G., et al. (ID 708) | 2000 | No data on prevalence, risk or diagnosis are provided. |
| Vega Alonso, A.T., et al. (ID 710)    | 2001 | Not available in full text.                            |

The selected studies have a highly variable sample size ranging from 175 to 4334 participants. About 36% of the studies had <500 participants; 36% included between 500 and 1000 participants and 26% included more than 1000 participants. Therefore, most of the articles selected for this review had a sample size of less than 1000 participants.

In general, the studies mostly included both sexes (10 were exclusively female). The study ages were highly heterogeneous, with analyses ranging in age from 9 to 44 years, although the range of 12 to 20 years of age was more frequent. The sample characteristics, measurements and prevalence values reported for each study included are shown in Table 2 (point prevalence) [10–39] and Table 3 (period prevalence) [40–46].

There is a high heterogeneity in the tools used for both screening and diagnosis of EDs. The most commonly used tools for screening are the Eating Attitudes Test (EAT) (EAT-40) [47], the Eating Disorder Inventory (EDI) [48] and the Bulimic Investigatory Test Edinburgh (BITE) [49], while for diagnosis, the Structured Clinical Interview with the Eating Disorders Examination (EDE) [50] and the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) [51] questionnaires are used.

Almost half of the studies do not report on the diagnostic tool used in conjunction with the clinical interview. Most diagnoses have been established following the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV).

The main autonomous communities where most research has been carried out on the prevalence of EDs in Spain are Catalonia and Madrid.

**Table 2.** Description of studies analysing the point prevalence of eating disorders in Spain.

[illegible]

Table 2. Cont.

| Study (ID)                                     | Year | Region                               | Age   | Sex    | Type of Study   | Tools for Screening                     | Tools for Diagnosis                             | n     | Total N Prevalence According to Tools | %                         | Total N Prevalence According to Diagnosis | %                         | n Anorexia | %     | n Bulimia | %     | n EDNOS          | %                         | n Binge Eating Disorder | %   |
|------------------------------------------------|------|--------------------------------------|-------|--------|-----------------|-----------------------------------------|-------------------------------------------------|-------|---------------------------------------|---------------------------|-------------------------------------------|---------------------------|------------|-------|-----------|-------|------------------|---------------------------|-------------------------|-----|
| Vega Alonso, A.T., et al. (ID 258) [26]        | 2005 | Castilla y León                      | 12–17 | Both   | Cross-sectional | EAT-40 ****                             | N/A                                             | ♀2483 | ♂305                                  | ♂13.1<br>♂10.1<br>♀11.60  | N/A                                       | N/A                       | N/A        | N/A   | N/A       | N/A   | N/A              | N/A                       | N/A                     | N/A |
|                                                |      |                                      |       |        |                 | EAT-40                                  |                                                 |       | ♀204                                  | ♂12.3<br>♂3.2<br>♀7.8     |                                           |                           |            |       |           |       |                  |                           |                         |     |
|                                                |      |                                      |       |        |                 |                                         |                                                 |       |                                       |                           |                                           |                           |            |       |           |       |                  |                           |                         |     |
| Toro, J., et al. (ID 254) [27]                 | 2006 | Barcelona                            | 11–18 | Female | Cross-sectional | EAT-26                                  | N/A                                             | ♀468  | ♀84                                   | ♀17.90                    | N/A                                       | N/A                       | N/A        | N/A   | N/A       | N/A   | N/A              | N/A                       | N/A                     | N/A |
| Peláez Fernández, M.A., et al. (ID 590) [28] # | 2007 | Madrid                               | 12–21 | Both   | Cross-sectional | EAT-40 * and/or Q-EDE                   | Interview semi-structured (EDE) <sup>D</sup>    | ♀1545 | ♂332                                  | ♀22.58                    | ♂53                                       | ♂3.43                     | ♂3         | ♀0.19 | ♂22       | ♀1.42 | ♂28              | ♀1.81                     | N/A                     | N/A |
| Muro-Sans, P., et al. (ID 247) [29]            | 2007 | Barcelona                            | 11–17 | Both   | Cross-sectional | EDI-2                                   | Interview semi-structured (EDE-12) <sup>A</sup> | ♀1092 | ♂93                                   | ♀5.40<br>♂3.57<br>♀8.52   | ♀13<br>♂1<br>♀14                          | ♀13.97<br>♂1.07<br>♀15.05 | 0          | 0     | 0         | 0     | ♀13<br>♂1<br>♀14 | ♀13.97<br>♂1.07<br>♀15.05 | N/A                     | N/A |
| Peláez-Fernández, M.A., et al. (ID 459) [30] # | 2008 | Madrid                               | 14–18 | Both   | Cross-sectional | EAT-40 *                                | Interview semi-structured (Q-EDE) <sup>D</sup>  | ♀289  | Uninformed                            | Uninformed                | ♀15<br>♂3<br>♀18                          | ♀5.19<br>♂1.03<br>♀6.22   | 0          | 0     | ♂6        | ♀2.07 | ♀12              | ♀4.15                     | N/A                     | N/A |
|                                                |      |                                      |       |        |                 | EAT-40 * or IMC ≤ 17.5kg/m <sup>2</sup> | Interview semi-structured (EDE-12) <sup>D</sup> | ♀270  | ♂47                                   | ♀7.40                     | ♀7<br>♂1<br>♀8                            | ♀2.59<br>♂0.37<br>♀2.96   | 0          | 0     | ♂4        | ♀1.48 | ♂4               | ♀1.48                     | N/A                     | N/A |
| Olesti Baiges, M., et al. (ID 237) [31]        | 2008 | Tarragona                            | 12–21 | Female | Cross-sectional | EAT-40 *                                | Clinical interview <sup>A</sup>                 | ♀551  | ♀75                                   | ♀13.61                    | ♀50                                       | ♀9.10                     | ♀5         | ♀0.9  | ♀16       | ♀2.9  | ♀29              | ♀5.3                      | N/A                     | N/A |
| Jáuregui Lobera, I., et al. (ID 458) [32]      | 2008 | Sevilla                              | 12–18 | Both   | Cross-sectional | SCOFF                                   | N/A                                             | ♀318  | ♂61                                   | ♀29.66<br>♂6.66<br>♀22.80 | N/A                                       | N/A                       | N/A        | N/A   | N/A       | N/A   | N/A              | N/A                       | N/A                     | N/A |
|                                                |      |                                      |       |        |                 | EAT-40                                  |                                                 |       | ♂30                                   | ♀15.47<br>♂2.66<br>♀9.43  |                                           |                           |            |       |           |       |                  |                           |                         |     |
| Ruiz-Lázaro, P. M., et al. (ID 207) [33] #     | 2010 | Zaragoza                             | 12–13 | Both   | Cross-sectional | EAT-26                                  | Interview semi-structured (SCAN) <sup>B,D</sup> | ♀701  | ♂63                                   | 10.3<br>♂7.8<br>♀9        | ♂5                                        | ♂1.5                      | ♂0         | ♀0    | ♂0        | ♀0    | ♂5               | ♂1.5                      | N/A                     | N/A |
| Mateos-Padorno, C., et al. (ID 206) [34]       | 2010 | Las Palmas de Gran Canaria           | 12–17 | Both   | Cross-sectional | EAT-40                                  | N/A                                             | ♀1364 | ♂183                                  | ♀14.5<br>♂11.6<br>♀13.40  | N/A                                       | N/A                       | N/A        | N/A   | N/A       | N/A   | N/A              | N/A                       | N/A                     | N/A |
| Cancela Carral, J.M., et al. (D199) [35]       | 2011 | Pontevedra                           | 18–22 | Female | Cross-sectional | EAT-40 *                                | N/A                                             | ♀258  | ♀41                                   | ♀15.89                    | N/A                                       | N/A                       | N/A        | N/A   | N/A       | N/A   | N/A              | N/A                       | N/A                     | N/A |
| Cruz-Sáez, M.S., et al. (ID 682) [36]          | 2013 | Guipúzcoa, Navarra                   | 16–20 | Female | Cross-sectional | EDI-2                                   | N/A                                             | ♀767  | ♀116                                  | ♀15.12                    | N/A                                       | N/A                       | N/A        | N/A   | N/A       | N/A   | N/A              | N/A                       | N/A                     | N/A |
| Martínez González, L., et al. (ID 152) [37]    | 2014 | Vigo; Jaén; Salamanca; León y Huelva | 17–23 | Both   | Cross-sectional | SCOFF                                   | N/A                                             | ♀1306 | ♂255                                  | ♀21.2<br>♂15.0<br>♀19.5   | N/A                                       | N/A                       | N/A        | N/A   | N/A       | N/A   | N/A              | N/A                       | N/A                     | N/A |
| Álvarez-Malé, M.L., (ID 137) [38] #            | 2015 | Las Palmas de Gran Canaria           | 12–20 | Both   | Cross-sectional | EAT-40 *                                | Interview semi-structured (EDE) <sup>D</sup>    | ♀1342 | ♂368                                  | ♀33<br>♂20.6<br>♀27.40    | ♂34                                       | ♀5.46<br>♂2.55<br>♀4.11   | ♂2         | ♀0.19 | ♂6        | ♀0.57 | ♂26              | ♀3.34                     | N/A                     | N/A |

Table 2. Cont.

| Study (ID)                                       | Year | Region      | Age   | Sex  | Type of Study   | Tools for Screening | Tools for Diagnosis                                   | n   | Total N<br>Prevalence<br>According to<br>Tools | %                    | Total N<br>Prevalence<br>According to<br>Diagnosis | %    | n<br>Anorexia | % | n<br>Bulimia | %   | n<br>EDNOS | %   | n<br>Binge<br>Eating<br>Disorder | %   |
|--------------------------------------------------|------|-------------|-------|------|-----------------|---------------------|-------------------------------------------------------|-----|------------------------------------------------|----------------------|----------------------------------------------------|------|---------------|---|--------------|-----|------------|-----|----------------------------------|-----|
| Pérez Martin, P.S.,<br>et al.<br>(ID 328) [39] # | 2021 | Guadalajara | 14–18 | Both | Cross-sectional | EAT-26              | Interview<br>semi-structured<br>(EDE-12) <sup>A</sup> | 291 | 12                                             | 5.5<br>2.4<br>4.1    | 36                                                 | 12.4 | 0             | 0 | 10           | 3.4 | 26         | 8.9 | N/A                              | N/A |
|                                                  |      |             |       |      |                 | SCOFF               |                                                       |     | 36                                             | 15.8<br>8.1<br>12.40 |                                                    |      |               |   |              |     |            |     |                                  |     |
|                                                  |      |             |       |      |                 | Q-EDE               |                                                       |     | 33                                             | 13.9<br>8.9<br>12    |                                                    |      |               |   |              |     |            |     |                                  |     |

Score legend: EAT-40: cut-off point  $\geq 30$ ; EDI: cut-off point  $\geq 14$ ; \* EDI: cut-off point  $\geq 50$ ; EAT-26: cut-off point  $\geq 20$ ; Q-EDD/H: uninformed; Q-EDE: uninformed; EDI-2: cut-off point  $\geq 95\%$  on two of the three EDI-2 scales (thinness, bulimia and body dissatisfaction); SCOFF: cut-off point  $\geq 2$ ; \* EAT-40: cut-off point  $\geq 20$ ; \*\* EDI: cut-off point  $\geq 43$ ; \*\*\* EDI: combination proposed by authors; \*\*\*\* EAT-40: cut-off point 21–30. Diagnostic legend: <sup>A</sup> DSM-IV: Diagnostic and Statistical Manual of Mental Disorders; <sup>B</sup> ICD-10: International Classification of Diseases; <sup>C</sup> DSM-III-R: Diagnostic and Statistical Manual of Mental Disorders; <sup>D</sup> DSM-IV-TR: DSM-III-R: Diagnostic and Statistical Manual of Mental Disorders; # Tests for Eating Disorders in Controls (false negatives). Tools legend: EDI: Eating Disorder Inventory; EAT: Eating Attitude Test; SCOFF: Sick, Control, One, Fat, Food Questionnaire; Q-EDE: Questionnaire for Eating Disorder Diagnoses; Q-EDE/H: Questionnaire for Eating Disorder Diagnoses for students; EDE: Eating Disorder Examination; SCAN: Schedules for Clinical Assessment in Neuropsychiatry. Other legends: EDNOS: Eating Disorders Not Otherwise Specified; ID: identifier study; N/A: not applicable.

**Table 3.** Description of studies analysing the prevalence of eating disorder periods in Spain.

| Study (ID)                                      | Year | Region      | Age       | Sex     | Type of Study                    | Tools Screening             | Tools Diagnosis                       | n                                     | Total n Prevalence According to Tools | %                                 | Total N Prevalence According to Diagnosis | %            | n Anorexia              | %              | n Bulimia      | %              | n EDNOS        | %              | n Binge Eating Disorder | %   |       |
|-------------------------------------------------|------|-------------|-----------|---------|----------------------------------|-----------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-----------------------------------|-------------------------------------------|--------------|-------------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|-----|-------|
| Canals, J., et al. (ID 317) [40]                | 1997 | Tarragona   | 17.5–18.5 | Both    | Cohort (follow-up for 60 months) | N/A                         | Interview semi-structured (SCAN) A, B | ♀290                                  | N/A                                   | N/A                               | ♂8 A<br>♂4 B                              | ♂2.8<br>♂1.3 | ♂4<br>♂1                | ♂1.4<br>♂0.3   | ♂2<br>♂1       | ♂0.7<br>♂0.3   | ♂2<br>♂2       | ♂0.7<br>♂0.7   | N/A                     | N/A |       |
| Martínez-González, M.A., et al. (ID 489) [41] # | 2003 | Navarra     | 12–21     | Females | Cohort (in two stages)           | 1st stage                   | EAT-40                                | Clinical interview C                  | ♀2862                                 | Uninformed                        | Uninformed                                | ♂119         | ♂4.15                   | ♂9             | ♂0.31          | ♂22            | ♂0.76          | ♂88            | ♂3.07                   | N/A | N/A   |
|                                                 |      |             |           |         |                                  | 2nd stage (18 months later) | EAT-40 *                              | Clinical interview C                  | ♀2509                                 | ♂446                              | ♂17.77                                    | ♂99          | ♂3.94                   | No information | No information | No information | No information | No information | No information          | N/A | N/A   |
| Beato-Fernández, L., et al. (ID 480) [42] #     | 2004 | Ciudad Real | 12–13     | Both    | Cohort (in two stages)           | 1st stage                   | EAT-40                                | N/A                                   | ♀1076                                 | ♂73<br>♂15<br>♂88                 | ♂6.78<br>♂1.39<br>♂8.17                   | N/A          | N/A                     | N/A            | N/A            | N/A            | N/A            | N/A            | N/A                     | N/A |       |
|                                                 |      |             |           |         |                                  |                             | BITE                                  |                                       |                                       |                                   |                                           |              |                         |                |                |                |                |                |                         |     |       |
|                                                 |      |             |           |         |                                  | 2nd stage (24 months later) | EAT-40                                | Interview semi-structured (SCAN) A, B | ♀1076                                 | ♂67<br>♂23<br>♂90                 | ♂6.22<br>♂2.13<br>♂8.36                   | ♂40          | ♂3.53<br>♂0.27<br>♂3.71 | ♂1             | ♂0.1           | ♂8             | ♂0.75          | ♂31            | ♂2.88                   | N/A | N/A   |
|                                                 |      |             |           |         |                                  |                             | BITE                                  |                                       |                                       |                                   |                                           |              |                         |                |                |                |                |                |                         |     |       |
| Rodríguez-Cano, T., et al. (ID 266) [43] #      | 2005 | Ciudad Real | 13        | Both    | Cohort (in two stages)           | 1st stage                   | EAT-40                                | N/A                                   | ♀1766                                 | ♂173<br>♂13.10<br>♂3.00<br>♂16.07 | N/A                                       | N/A          | N/A                     | N/A            | N/A            | N/A            | N/A            | N/A            | N/A                     | N/A |       |
|                                                 |      |             |           |         |                                  |                             | BITE                                  |                                       |                                       |                                   |                                           |              |                         |                |                |                |                |                |                         |     |       |
|                                                 |      |             |           |         |                                  | 2nd stage (24 months later) | EAT-40                                | Interview semi-structured (SCAN) C    | ♀1076                                 | ♂159<br>♂11.3<br>♂1.8             | ♂40                                       | ♂3.71        | ♂1                      | ♂0.17          | ♂8             | ♂0.75          | ♂31            | ♂2.88          | N/A                     | N/A |       |
|                                                 |      |             |           |         |                                  |                             | BITE                                  |                                       |                                       |                                   |                                           |              |                         |                |                |                |                |                |                         |     |       |
| Sancho, C., et al. (ID 241) [44] #              | 2007 | Tarragona   | 9–13.5    | Both    | Cohort (in two stages)           | 1st stage                   | ChEAT                                 | Interview semi-structured (DICA-C) C  | ♀1336                                 | ♂94<br>♂79<br>♂173                | ♂13.68<br>♂12.17<br>♂12.94                | ♂46          | ♂3.44                   | ♂0             | ♂0             | ♂0             | ♂0             | ♂45            | ♂3.36                   | ♂1  | ♂0.07 |
|                                                 |      |             |           |         |                                  | 2nd stage (24 months later) | EAT y/o BITE                          |                                       |                                       |                                   |                                           |              |                         |                |                |                |                |                |                         |     |       |
| Rojo-Moreno, L., et al. (ID 141) [45]           | 2015 | Valencia    | 12–16     | Both    | Cohort (in two stages)           | 1st stage                   | Uninformed                            | Interview semi-structured (K-SADS) C  | ♀962                                  | ♂97<br>♂60<br>♂157                | ♂23.6<br>♂13.8<br>♂18.53                  | ♂35          | ♂3.6                    | ♂2             | ♂0.20          | ♂3             | ♂0.31          | ♂30            | ♂3.11                   | ♂0  | ♂0    |
|                                                 |      |             |           |         |                                  | 2nd stage (24 months later) |                                       |                                       |                                       |                                   |                                           |              |                         |                |                |                |                |                |                         |     |       |
| Esteban-Gonzalo, L., et al. (ID 356) [46]       | 2019 | Madrid      | 11–19     | Both    | Cohort                           | 1st stage                   | SCOFF                                 | N/A                                   | ♀847                                  | ♂97<br>♂60<br>♂157                | ♂23.6<br>♂13.8<br>♂18.53                  | N/A          | N/A                     | N/A            | N/A            | N/A            | N/A            | N/A            | N/A                     | N/A |       |
|                                                 |      |             |           |         |                                  | 2nd stage (24 months later) | SCOFF                                 |                                       |                                       |                                   |                                           |              |                         |                |                |                |                |                |                         |     |       |

Score legend: EAT-40: cut-off point  $\geq 30$ ; BITE: cut-off point  $\geq 10$ ; \* EAT-40: cut-off point  $\geq 21$ ; ChEAT: cut-off point  $\geq 17$ ; EAT: cut-off point  $\geq 25$ ; SCOFF: cut-off point  $\geq 2$ . Tools legend: BITE: Bulimic Investigatory Test Edinburgh; ChEAT: Children Eating Attitudes Test; DICA: Diagnostic interview for children and adolescents; DICA-A: Diagnostic interview for adolescents; DICA-C: Diagnostic interview for children; EAT: Eating Attitude Test; K-SADS: Kiddie Schedule for Affective Disorders and Schizophrenia; SCAN: Schedules for Clinical Assessment in Neuropsychiatry; SCOFF: Sick, Control, One, Fat, Food Questionnaire. Diagnostic legend: <sup>A</sup> ICD-10: International Classification of Diseases; <sup>B</sup> DSM-III-R: Diagnostic and Statistical Manual of Mental Disorders; <sup>C</sup> DSM-IV: Diagnostic and Statistical Manual of Mental Disorders; # Tests for Eating Disorders in Controls (false negatives). Other legends: EDNOS: Eating Disorders Not Otherwise Specified; ID: identifier study; N/A: not applicable.



#### 4. Discussion

The study carried out is presented as the first scoping review carried out in Spain on the prevalence of EDs. This research has analysed and synthesised the literature published in this field in different databases, emphasising the importance of this type of study. However, it is noteworthy that, to date, no similar review has been carried out, especially considering the relevance of these pathologies due to their high morbidity and mortality. This will make it easier to undertake further studies on the prevalence of this disease, allowing the problem to be better understood.

The first prevalence study identified in this work was carried out in 1997 [40], although previous studies were published in non-indexed journals [52,53]. However, since that date, the study of these pathologies has increased in Spain, in line with other studies published in recent decades in other countries, especially in developed countries [54,55]. Even so, it is important to highlight the great variability of most of the studies identified in many respects.

On the one hand, there are differences in the methodology and/or screening tools used that hinder the diagnostic approach, as well as their prevalence. In addition, there are considerable differences in the population sectors analysed. In general, the information available is outdated with respect to the latest diagnostic criteria, as no study has been found that follows the current criteria proposed by the DSM-5. It should be noted that this situation does not only occur in Spain, although other countries are beginning to carry out studies with these revised criteria [56,57].

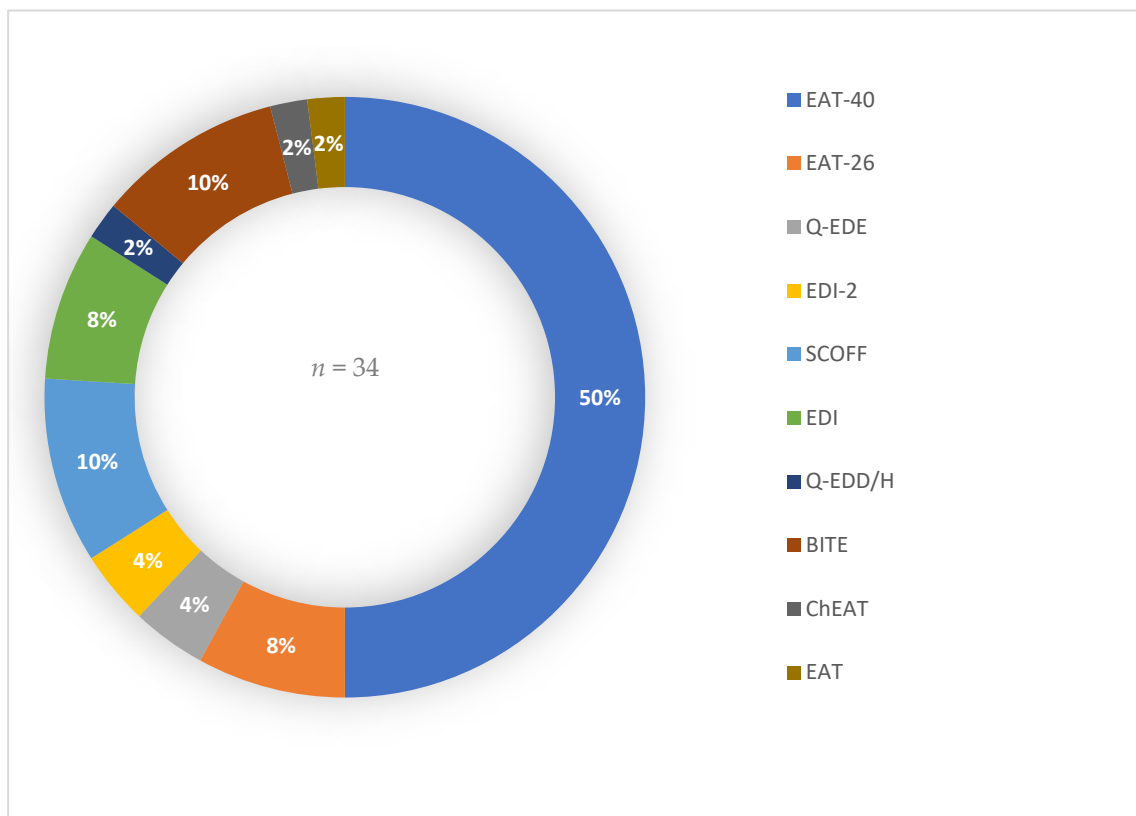
In this sense, the literature analysed for this review shows the enormous heterogeneity used in the diagnosis and classification of EDs, with numerous questionnaires and validated tools for the identification of EDs.

A total of 34 studies include risk prevalence results, in which up to ten different screening tools were identified, with the EAT [47], in its extended version, being the most widely used (Figure 2).

The most commonly applied screening tests for ED risk are the EAT-40 [47], the BITE [49] and the Sick, Control, One, Fat, Food Questionnaire (SCOFF) [58]. However, despite being the most widely used, the variability in the different cut-off points used to establish risk stands out, especially in the different versions of the EAT [47].

Regarding the diagnostic criteria, no results were obtained using the DSM-5 version, which shows a decrease in cases classified as EDNOS by the DSM-IV-TR [59] and an increase in specificity and selectivity obtained by applying the new criteria (DSM-5) [2]. In fact, the most widely used criteria have been made through the application of DSM-IV [59]. In this regard, several authors have confirmed the great impact of the change in criteria proposed in the DSM-5 on the results [18]. Fairburn and Cooper et al. [60] found surprising results, with a decrease in EDNOS (from 53% to 25% of total ED) and a considerable increase in cases classified as AN (from 8% to 29% of total ED), while BN remained stable (39%). This confirms the idea that studies in the Spanish population that take into account these new criteria are needed in order to update the data adequately. In the present review, we cannot analyse the possible differences observed since, as mentioned above, no study following the DSM-5 criteria is available [2]. On the other hand, no differences are observed when comparing the results obtained using DSM-III or DSM-IV; in both cases, most of the subjects have been diagnosed with EDNOS, with a low percentage of cases being classified as one of the full forms of the diseases (AN, BN or BED) included in this chapter of the manual.

Only 48% of the total selected studies report on diagnosis; twelve studies used a cross-sectional methodology for point prevalence and six studies used period prevalence to analyse cohorts of participants. In addition, few studies go as far as analysing false negatives by analysing those participants who scored negative in the risk screening.



**Figure 2.** Percentage distribution of screening tools used in the different studies identified. EAT: Eating Attitude Test; Q-EDE: Questionnaire for Eating Disorder Diagnoses; EDI: Eating Disorder Inventory; SCOFF: Sick, Control, One, Fat, Food Questionnaire; Q-EDD/H: Questionnaire for Eating Disorder Diagnoses for students; BITE: Bulimic Investigatory Test Edinburgh; ChEAT: Children Eating Attitudes Test.

With regard to the nature of the participants, it should be noted that EDs are pathologies that have been commonly and repeatedly associated with the female sex. The results found are in line with these observations, with a clearly higher prevalence of both EDs in general, and of each of them in particular, in the female sex compared to that observed in the male sex. This would explain why some of the studies only use a female population. Although it may imply a certain bias in the results, in this review, out of the total of 37 included studies, ten of them only included a female population [11,15,17,23,24,27,31,35,36,41]. Some authors consider that in early stages, such as adolescence, these differences tend to become blurred, considering it a mistake to eliminate male individuals in the prevalence of these pathologies [30]. This may be of relevance since many of the studies included in this review were conducted on adolescent subjects. It is also worth noting that when following the single-phase protocol, i.e., where only the application of the screening questionnaires is included, the prevalence obtained was higher than when applying the two-phase protocol.

The application of two-phase studies also has discrepancies. Some authors explain a first phase for screening and a second phase for diagnosis [43]. Other authors, however, establish the two phases using other procedures: a first phase for screening (without diagnosis) and a second phase to assess the occurrence of new cases after a certain time (usually 24 months later) [46]. Although both cases are valid, it becomes difficult to homogenise studies to assess the different prevalences.

The results have been obtained in the Spanish population of different autonomous communities, although the provinces where most studies have been carried out are Catalonia and Madrid. However, the internal variability of the population within Spain does not seem to be very high, so it can be considered a homogeneous population in terms of

its origin and socio-cultural influence. It can be deduced that the differences observed are mainly due to the variability in the methodology used, as mentioned above.

The present review is limited in time due to a delay in analyses during the COVID-19 pandemic [61]. Also, certain articles identified could not be assessed because they were older, non-indexed publications and not fully accessible in online format. Nevertheless, it serves as a precedent to continue developing further prevalence studies on EDs in Spain and to continue towards a more precise analysis through a systematic review using the updated criteria (DSM-5).

## 5. Conclusions

The present work symbolises the first scoping review carried out in Spain on the prevalence of EDs. A total of 37 studies have been identified that analyse both the risk and the occurrence of these diseases. The ages of puberty and adolescence are the most widely studied. However, there is a high heterogeneity in the use of ED screening tools and a paucity of information on diagnostic tools. More research is needed to analyse not only national prevalence using updated criteria (DSM-5) but also the economic burden of ED treatment, as well as cost-effectiveness analysis of different treatments.

**Author Contributions:** Conceptualization: N.B.B., Y.R.F. and C.D.R.; methodology: N.B.B. and Y.R.F.; validation: N.B.B., Y.R.F. and C.D.R.; formal analysis: N.B.B., Y.R.F. and C.D.R.; investigation: N.B.B., F.M.R., B.P.R., J.D.I.H.R., Y.R.F. and C.D.R.; resources: N.B.B., F.M.R., B.P.R., J.D.I.H.R., Y.R.F. and C.D.R.; data curation: N.B.B., Y.R.F. and J.D.I.H.R.; writing—original draft preparation: N.B.B., F.M.R., B.P.R., J.D.I.H.R.; writing—review and editing: N.B.B., Y.R.F. and C.D.R.; supervision: N.B.B. and C.D.R.; project administration: N.B.B. and Y.R.F.; funding acquisition: N.B.B. and Y.R.F. All authors have read and agreed to the published version of the manuscript.

**Funding:** The present study is part of the PRETA project that has been financed by the Canarian Foundation Institute of Health Research of the Canary Islands during the year 2020, in relation to the granting of aid for the financing of Research, Development and Innovation Projects oriented to satisfy health needs (project number: PIFIISC20/34).

**Conflicts of Interest:** The authors declare no conflict of interest. The funders have not participated in the design, analysis, interpretation of the results, or publication of the same.

## Abbreviations

|          |                                                       |
|----------|-------------------------------------------------------|
| AN       | Anorexia nervosa                                      |
| ARFID    | Avoidant restrictive food intake disorder             |
| BITE     | Bulimic Investigatory Test Edinburgh                  |
| BED      | Binge eating disorder                                 |
| BN       | Bulimia nervosa                                       |
| COVID-19 | Coronavirus disease 2019                              |
| DSM      | Diagnostic and Statistical Manual of Mental Disorders |
| EAT      | Eating Attitude Test                                  |
| ED       | Eating disorders                                      |
| EDE      | Eating Disorder Examination                           |
| EDI      | Eating Disorder Inventory                             |
| EDNOS    | Eating disorders not otherwise specified              |
| ICD      | International Classification of Diseases              |
| OSFED    | Other specified feeding or eating disorder            |
| SCAN     | Schedules for Clinical Assessment in Neuropsychiatry  |

## References

1. Treasure, J.; Duarte, T.A.; Schmidt, U. Eating disorders. *Lancet J.* **2020**, *395*, 899–911. [[CrossRef](#)]
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; Editorial Médica Panamericana: Madrid, Spain, 2014.
3. World Health Organization. *ICD-11-ES: International Statistical Classification of Diseases and Related Health Problems [Internet]*; World Health Organization: Geneva, Switzerland, 2022.

4. Erzegovesi, S.; Bellodi, L. Eating disorders. *CNS Spectr.* **2016**, *21*, 304–309. [CrossRef]
5. Herpertz-Dahlmann, B. Adolescent Eating Disorders: Update on Definitions, Symptomatology, Epidemiology, and Comorbidity. *Child. Adolesc. Psychiatr. Clin. N. Am.* **2015**, *24*, 177–196. [CrossRef]
6. Smink, F.R.E.; van Hoeken, D.; Hoek, H.W. Epidemiology of eating disorders: Incidence, prevalence and mortality rates. *Curr. Psychiatry Rep.* **2012**, *14*, 406–414. [CrossRef]
7. Arcelus, J.; Mitchell, A.J.; Wales, J.; Nielsen, S. Mortality rates in patients with anorexia nervosa and other eating disorders. A meta-analysis of 36 studies. *Arch. Gen. Psychiatry* **2011**, *68*, 724–731. [CrossRef]
8. Fernández-Aranda, F.; Casas, M.; Claes, L.; Bryan, D.C.; Favaro, A.; Granero, R.; Gudiol, C.; Jiménez-Murcia, S.; Karwautz, A.; Le Grange, D.; et al. COVID-19 and implications for eating disorders. *Eur. Eat. Disord. Rev.* **2020**, *28*, 239–245. [CrossRef]
9. Higgins, J.; Thomas, J. Cochrane Handbook for Systematic Reviews of Interventions Version 6.2 (Updated February 2021). 2021. Available online: <https://training.cochrane.org/handbook/archive/v6.2> (accessed on 2 January 2024).
10. Canals, J.; Carbajo, G.; Fernández, J.; Martí-Henneberg, C.; Domènech, E. Biopsychopathologic risk profile of adolescents with eating disorder symptoms. *Adolescence* **1996**, *31*, 443–450. [PubMed]
11. Ruiz, P.M.; Alonso, J.P.; Velilla, J.M.; Lobo, A.; Martín, A.; Paumard, C.; Calvo, A.I. Study of the prevalence of eating disorders in adolescents in Zaragoza. *Rev. Psiquiatr. Infanto-Juv.* **1998**, *3*, 148–162.
12. Sáiz Martínez, P.A.; González García-Portilla, M.P.; Bascarán Fernández, M.T.; Fernández Domínguez, J.M.; Bousoño García, M.; Bobes García, J. Prevalence of eating disorders in secondary level students: A preliminary study. *Actas Esp. Psiquiatr.* **1999**, *27*, 367–374. [PubMed]
13. Morandé, G.; Celada, J.; Casas, J.J. Prevalence of eating disorders in a Spanish school-age population. *J. Adolesc. Health* **1999**, *24*, 212–219. [CrossRef]
14. Martínez Martínez, A.; Menéndez Martínez, D.; Sánchez Trapiello, M.J.; Seoane Vicente, M.; Suárez Gil, P. Anorexic Behaviors in the Population of High School Students in a Health Area. *Aten. Primaria* **2000**, *25*, 313–319. [CrossRef]
15. Gaspar, M.P.; García, P.G.; Irala, J.; de González, M.Á.M.; Ramos, F.L.; Cervera, S. Prevalence of eating disorders in adolescent girls in Navarre. *Med. Clínica* **2000**, *114*, 481–486. [CrossRef]
16. Rivas Moya, M.T.; Bersabé Morán, R.; Castro Zamudio, S. Prevalence of eating disorders in adolescents in Malaga (Spain). *Salud Ment.* **2001**, *24*, 25–31.
17. Raich, R.M.; Mora, M.; Sánchez-Carracedo, D.; Torras, J.; Viladrich, M.C.; Zapater, L.; Mancilla, J.M.; Vázquez, R.; Álvarez-Rayón, G. A cross-cultural study on eating attitudes and behaviours in two Spanish-speaking countries: Spain and Mexico. *Eur. Eat. Disord. Rev.* **2001**, *9*, 53–63. [CrossRef]
18. Barba, S.M.; Alonso, N.G.; Viñas, J.M.C.; de la Morena, J.C.; Gómez, R.G.-C.; Sánchez, M.A.; Sánchez, R.O. Eating Disorders in a High School Student Population. *Aten. Primaria* **2001**, *28*, 463–467. [CrossRef]
19. Rodríguez, A.; Novalbos, J.P.; Martínez, J.M.; Ruiz, M.A.; Fernández, J.R.; Jiménez, D. Eating disorders and altered eating behaviors in adolescents of normal weight in a Spanish city. *J. Adolesc. Health* **2001**, *28*, 338–345. [CrossRef]
20. Ballester Ferrando, D.; de Gracia Blanco, M.; Patiño Masó, J.; Suñol Gurnés, C.; Ferrer Avellí, M. Eating Attitudes and Body Satisfaction in Adolescents: A Prevalence Study. *Actas Españolas Psiquiatr.* **2002**, *30*, 207–212.
21. Espina, A.; Ortego, M.A.; Ochoa de Alda, I.; Aleman, A.; Juaniz, M. Body shape and eating disorders in a sample of students in the Basque country: A pilot study. *Psychol. Spain* **2002**, *6*, 3–11.
22. Rojo, L.; Livianos, L.; Conesa, L.; García, A.; Domínguez, A.; Rodrigo, G.; Sanjuán, L.; Vila, M. Epidemiology and risk factors of eating disorders: A two-stage epidemiologic study in a Spanish population aged 12–18 years. *Int. J. Eat. Disord.* **2003**, *34*, 281–291. [CrossRef]
23. Galdón Blesa, M.P.; López-Torres, J.D.; David García, Y.; Gómez Honrubia, M.C.; Escobar Rabadán, F.; Martínez Ramírez, M. [Detection of bulimia nervosa in primary health care consultations]. *Actas Esp. Psiquiatr.* **2003**, *31*, 129–132. [PubMed]
24. Machado, P.P.P.; Calado Otero, M.; Gonçalves, S.F.; Martins, C.; Lameiras Fernández, M. Eating related problems amongst Iberian female college students. *Int. J. Clin. Health Psychol.* **2004**, *4*, 495–504.
25. Gandarillas, A.; Febrel, C.; Galán, I.; León, C.; Zorrilla, B.; Bueno, R. Population at risk for eating disorders in a Spanish region. *Eat. Weight. Disord.* **2004**, *9*, 179–185. [CrossRef]
26. Vega Alonso, A.T.; Rasillo Rodríguez, M.A.; Lozano Alonso, J.E.; Rodríguez Carretero, G.; Martín, M.F. Eating disorders. Prevalence and risk profile among secondary school students: Prevalence and risk profile among secondary school students. *Soc. Psychiatry Psychiatr. Epidemiol.* **2005**, *40*, 980–987. [CrossRef] [PubMed]
27. Toro, J.; Gomez-Peresmitré, G.; Sentis, J.; Vallés, A.; Casulà, V.; Castro, J.; Pineda, G.; Leon, R.; Platas, S.; Rodriguez, R. Eating disorders and body image in Spanish and Mexican female adolescents. *Soc. Psychiatry Psychiatr. Epidemiol.* **2006**, *41*, 556–565. [CrossRef] [PubMed]
28. Peláez Fernández, M.A.; Labrador, F.J.; Raich, R.M. Prevalence of eating disorders among adolescent and young adult scholastic population in the region of Madrid (Spain). *J. Psychosom. Res.* **2007**, *62*, 681–690. [CrossRef]
29. Muro-Sans, P.; Amador-Campos, J.A. Prevalence of eating disorders in a Spanish community adolescent sample. *Eat. Weight. Disord.* **2007**, *12*, e1–e6. [CrossRef]
30. Peláez-Fernández, M.A.; Labrador, F.J.; Raich, R.M. Comparison of single- and double-stage designs in the prevalence estimation of eating disorders in community samples. *Span. J. Psychol.* **2008**, *11*, 542–550. [CrossRef]

31. Olesti Baiges, M.; Piñol Moreso, J.L.; Martín Vergara, N.; de la Fuente García, M.; Riera Solé, A.; Bofarull Bosch, J.M.; Ricomá de Castellarnau, G. Prevalence of anorexia nervosa, bulimia nervosa and other eating disorders in female adolescents from Reus. *An. Pediatr.* **2008**, *68*, 18–23. [\[CrossRef\]](#)
32. Jáuregui Lobera, I.; Romero Candau, J.; Montaña González, M.T.; Morales Millán, M.T.; Vargas Sánchez, N.; León Lozano, P. Analysis of eating attitudes in a sample of adolescents from Seville. *Med. Clin.* **2009**, *132*, 83–88. [\[CrossRef\]](#) [\[PubMed\]](#)
33. Ruiz-Lázaro, P.M.; Comet, M.P.; Calvo, A.I.; Zapata, M.; Cebollada, M.; Trébol, L.; Lobo, A. Prevalence of eating disorders in early adolescent students. *Actas Esp. Psiquiatr.* **2010**, *38*, 204–211.
34. Mateos-Padorno, C.; Scoffier, S.; Polifrone, M.; Martínez-Patiño, M.J.; Martínez-Vidal, A.; Zagalaz Sánchez, M.L. Analysis of eating disorders among 12–17 year-old adolescents in the island of Gran Canaria. *Eat. Weight. Disord.* **2010**, *15*, e190–e194. [\[CrossRef\]](#)
35. María, C.C.J.; Carlos, A.P. Prevalence and relationship between the level of physical activity and abnormal eating attitudes in Spanish university students of health sciences and education. *Rev. Esp. Salud Publica* **2011**, *85*, 499–505. [\[CrossRef\]](#)
36. Cruz-Sáez, M.S.; Pascual, A.; Etxebarria, I.; Echeburúa, E. Risk of eating disorder, substance use, and emotional difficulties in adolescent girls. *Ann. Psychol.* **2013**, *29*, 724–733. [\[CrossRef\]](#)
37. Martínez-González, L.; Fernández Villa, T.; Molina de la Torre, A.J.; Ayán Pérez, C.; Bueno Cavanillas, A.; Capelo Álvarez, R.; Mateos Campos, R.; Martín Sánchez, V. Prevalence of eating disorders in Spanish university students and associated factors: UniHcos project. *Nutr. Hosp.* **2014**, *30*, 927–934. [\[CrossRef\]](#) [\[PubMed\]](#)
38. Álvarez-Malé, M.L.; Bautista Castaño, I.; Serra Majem, L. Prevalence of eating disorders in adolescents from Gran Canaria. *Nutr. Hosp.* **2015**, *31*, 2283–2288. [\[CrossRef\]](#)
39. Pérez Martín, P.S.; Martínez, J.A.; Valecillos, A.J.; Gainza García, L.; Galán Berasaluce, M.; Checa Díaz, P. Early detection and prevalence of risk of eating disorder in Primary Care in Guadalajara city. *Semergen* **2021**, *47*, 230–239. [\[CrossRef\]](#) [\[PubMed\]](#)
40. Canals, J.; Domènech, E.; Carbajo, G.; Bladé, J. Prevalence of DSM-III-R and ICD-10 Psychiatric Disorders in a Spanish Population of 18-years-old. *Acta Psychiatr. Scand.* **1997**, *96*, 287–294. [\[CrossRef\]](#) [\[PubMed\]](#)
41. Martínez-González, M.A.; Gual, P.; Lahortiga, F.; Alonso, Y.; de Irala-Estévez, J.; Cervera, S. Parental factors, mass media influences, and the onset of eating disorders in a prospective population-based cohort. *Pediatrics* **2003**, *111*, 315–320. [\[CrossRef\]](#) [\[PubMed\]](#)
42. Beato-Fernández, L.; Rodríguez-Cano, T.; Belmonte-Llario, A.; Martínez-Delgado, C. Risk factors for eating disorders in adolescents: A Spanish community-based longitudinal study. *Eur. Child. Adolesc. Psychiatry* **2004**, *13*, 287–294. [\[CrossRef\]](#)
43. Rodríguez-Cano, T.; Beato-Fernández, L.; Belmonte-Llario, A. New contributions to the prevalence of eating disorders in Spanish adolescents: Detection of false negatives. *Eur. Psychiatry* **2005**, *20*, 173–178. [\[CrossRef\]](#)
44. Sancho, C.; Arija, M.V.; Asorey, O.; Canals, J. Epidemiology of eating disorders: A two year follow up in an early adolescent school population. *Eur. Child. Adolesc. Psychiatry* **2007**, *16*, 495–504. [\[CrossRef\]](#)
45. Rojo-Moreno, L.; Arribas, P.; Plumed, J.; Gimeno, N.; García-Blanco, A.; Vaz-Leal, F.; Luisa Vila, M.; Livianos, L. Prevalence and comorbidity of eating disorders among a community sample of adolescents: 2-year follow-up. *Psychiatry Res.* **2015**, *227*, 52–57. [\[CrossRef\]](#) [\[PubMed\]](#)
46. Esteban-Gonzalo, L.; González-Pascual, J.L.; Cabanas-Sánchez, V.; Izquierdo-Gómez, R.; Veiga, O.L. A longitudinal perspective of eating disorder risk in immigrant and Spanish native adolescents: The longitudinal up & down study. *Cult. Divers. Ethn. Minor. Psychol.* **2019**, *25*, 590–597. [\[CrossRef\]](#) [\[PubMed\]](#)
47. Garner, D.M.; Garfinkel, P.E. The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. *Psychol. Med.* **1979**, *9*, 273–279. [\[CrossRef\]](#) [\[PubMed\]](#)
48. Garner, D.M.; Olmstead, M.P.; Polivy, J. Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *Int. J. Eat. Disord.* **1983**, *2*, 15–34. [\[CrossRef\]](#)
49. Henderson, M.; Freeman, C.P. A self-rating scale for bulimia. The 'BITE'. *Br. J. Psychiatry* **1987**, *150*, 18–24. [\[CrossRef\]](#) [\[PubMed\]](#)
50. Fairburn, C.G.; Beglin, S.J. Assessment of eating disorders: Interview or self-report questionnaire? *Int. J. Eat. Disord.* **1994**, *16*, 363–370. [\[CrossRef\]](#) [\[PubMed\]](#)
51. Hurwitz, T. The Schedules for Clinical Assessment in Neuropsychiatry. Version 2. *J. Psychiatry Neurosci.* **1996**, *21*, 208–209.
52. Morandé, G. Eating Disorders in Children and Adolescents. In *Salud Mental: Formación Continuada en Atención Primaria*; Romero, A.I., Fernández, A., Eds.; IDEPSA: Madrid, Spain, 1990; pp. 121–130.
53. Morandé, G. Adolescent Disorders. In *Salud Mental: Formación continuada en Atención Primaria*; Romero, A.I., Fernández, A., Eds.; IDEPSA: Madrid, Spain, 1990; pp. 183–192.
54. Hoek, H.W. Incidence, prevalence and mortality of anorexia nervosa and other eating disorders. *Curr. Opin. Psychiatry* **2006**, *19*, 389–394. [\[CrossRef\]](#) [\[PubMed\]](#)
55. Ward, Z.J.; Rodriguez, P.; Wright, D.R.; Austin, S.B.; Long, M.W. Estimation of Eating Disorders Prevalence by Age and Associations With Mortality in a Simulated Nationally Representative US Cohort. *JAMA Netw. Open* **2019**, *2*, e1912925. [\[CrossRef\]](#)
56. Silén, Y.; Sipilä, P.N.; Raevuori, A.; Mustelin, L.; Marttunen, M.; Kaprio, J.; Keski-Rahkonen, A. DSM-5 eating disorders among adolescents and young adults in Finland: A public health concern. *Int. J. Eat. Disord.* **2020**, *53*, 520–531. [\[CrossRef\]](#)
57. Hay, P.; Girosi, F.; Mond, J. Prevalence and sociodemographic correlates of DSM-5 eating disorders in the Australian population. *J. Eat. Disord.* **2015**, *3*, 19. [\[CrossRef\]](#) [\[PubMed\]](#)
58. Morgan, J.F.; Reid, F.; Lacey, J.H. The SCOFF questionnaire: A new screening tool for eating disorders. *West. J. Med.* **2000**, *172*, 164–165. [\[CrossRef\]](#) [\[PubMed\]](#) [\[PubMed Central\]](#)



- 
59. American Psychiatric Association *Diagnostic Statistical Manual of Mental Disorders*, 4th ed; DSM-IV TR; Masson: Barcelona, Spain, 2002.
  60. Fairburn, C.G.; Cooper, Z. Eating disorders, DSM-5 and clinical reality. *Br. J. Psychiatry* **2011**, *198*, 8–10. [[CrossRef](#)] [[PubMed](#)]
  61. Velavan, T.P.; Meyer, C.G. The COVID-19 epidemic. *Trop. Med. Int. Health* **2020**, *25*, 278–280. [[CrossRef](#)]

**Disclaimer/Publisher’s Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.