**Prevalence of** ***Batrachochytrium dendrobatidis* in amphibians from 2000 to 2021: A global systematic review and meta-analysis**

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**Table S1** Normal distribution test for the normal rate and the different conversion of the normal rate.

|  |  |  |
| --- | --- | --- |
| Conversion form | *W* | *P* |
| PRAW | 0.87597 | 3.62e-08 |
| PLN | NaN | NA |
| PLOGIT | NaN | NA |
| PAS | 0.96851 | 0.009998 |
| PFT | 0.96961 | 0.01231 |

“*W*”: Shapiro-Wilk test; “PRAW”: original rate; “PLN”: logarithmic conversion; “PLOGIT”: logit transformation; “PAS”: arcsine transformation; “PFT”: double-arcsine transformation; “NaN”: meaningless number; “NA”: missing data.

**Table S2** Egger’s test for Publication Bias.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| slope | bias | se. bias | t | df | *p*-value |
| 0.357 | 2.232 | 2.142 | 1.042 | 109 | 0.2999 |

**Table S3** Estimated pooled prevalence of *Batrachochytrium dendrobatidis* by national region.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Countries | No.studies | No.tested | No.positive | %Prevalence | % (95% CI) |
| Australia | 9 | 3535 | 1369 | 38.73% | 15.94-51.32 |
| Bangladesh | 1 | 133 | 20 | 15.04% | 9.42-21.66 |
| Belize | 1 | 524 | 30 | 5.72% | 3.88-7.89 |
| Benin | 1 | 133 | 0 | 0.00% | 0.00-1.29 |
| Brazil | 6 | 1138 | 373 | 32.78% | 24.86-53.25 |
| Burkina Faso | 1 | 3 | 0 | 0.00% | 0.00-50.03 |
| Cameroon | 1 | 283 | 0 | 0.00% | 0.00-0.61 |
| Canada | 5 | 3209 | 824 | 25.68% | 15.67-31.39 |
| China | 6 | 2425 | 67 | 2.76% | 0.02-6.55 |
| Colombia | 1 | 244 | 41 | 16.80% | 12.36-21.77 |
| Congo | 1 | 166 | 58 | 34.94% | 27.85-42.37 |
| Costa Rica | 6 | 1399 | 282 | 20.16% | 2.08-34.29 |
| Côte d'Ivoire | 1 | 53 | 0 | 0.00% | 0.00-3.22 |
| Cuba | 1 | 220 | 35 | 15.91% | 11.35-21.06 |
| Ecuador | 1 | 60 | 13 | 21.67% | 12.05-33.08 |
| El Salvador | 1 | 207 | 32 | 15.46% | 10.83-20.73 |
| Ethiopia | 1 | 120 | 51 | 42.50% | 33.77-51.47 |
| French | 2 | 663 | 35 | 5.28% | 3.63-7.08 |
| Gabon | 1 | 166 | 39 | 23.49% | 17.33-30.27 |
| Germany | 2 | 3570 | 284 | 7.95% | 0.00-15.97 |
| Ghana | 1 | 290 | 0 | 0.00% | 0.00-0.59 |
| Guinea | 1 | 287 | 0 | 0.00% | 0.00-0.60 |
| India | 1 | 1870 | 158 | 8.45% | 7.23-9.75 |
| Ireland | 1 | 195 | 0 | 0.00% | 0.00-0.88 |
| Italian | 4 | 762 | 136 | 17.85% | 2.96-44.33 |
| Japan | 1 | 2103 | 87 | 4.14% | 3.33-5.03 |
| Kenya | 1 | 861 | 271 | 31.47% | 28.41-34.62 |
| Korea | 1 | 1863 | 330 | 17.71% | 16.01-19.48 |
| Liberia | 1 | 14 | 0 | 0.00% | 0.00-11.93 |
| Madagascar | 2 | 827 | 0 | 0.00% | 0.00-0.22 |
| Malawi | 1 | 76 | 14 | 18.42% | 10.41-28.01 |
| Malaysia | 1 | 127 | 10 | 7.87% | 3.74-13.28 |
| Mexico | 6 | 1115 | 515 | 46.19% | 10.40-66.03 |
| Netherlands | 1 | 1482 | 209 | 14.10% | 12.38-15.92 |
| Nicaragua | 1 | 122 | 4 | 3.28% | 0.71-7.33 |
| Panama | 4 | 3560 | 493 | 13.85% | 9.16-24.33 |
| Papua New Guinea | 1 | 232 | 0 | 0.00% | 0.00-0.74 |
| Peru | 2 | 1575 | 541 | 34.35% | 6.49-48.95 |
| Poland | 1 | 255 | 46 | 18.04% | 13.55-23.01 |
| Sierra Leone | 1 | 11 | 0 | 0.00% | 0.00-15.07 |
| Singapore | 1 | 240 | 2 | 0.83% | 0.01-2.50 |
| South Africa | 1 | 235 | 18 | 7.66% | 4.57-11.44 |
| Spain | 2 | 790 | 106 | 13.42% | 3.69-38.65 |
| Sweden | 1 | 947 | 156 | 16.47% | 14.18-18.91 |
| Switzerland | 1 | 374 | 4 | 1.07% | 0.00-2.78 |
| Trinidad and Tobago | 1 | 183 | 10 | 5.46% | 2.57-9.29 |
| Turkey | 1 | 229 | 44 | 19.21% | 14.35-24.59 |
| Uganda | 1 | 109 | 24 | 22.02% | 14.69-30.33 |
| USA | 27 | 11228 | 2398 | 21.36% | 11.57-26.85 |
| Venezuela | 1 | 649 | 323 | 49.77% | 45.92-53.62 |
| Vietnam | 1 | 123 | 0 | 0.00% | 0.00-1.39 |
| Total | 111 | 50985 | 9452 | 18.54% | 13.76-20.52 |

**Table S4** Included studies and quality scores.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Reference ID** | **No.****tested** | **No.****positive** | **Prevalence** | **Study design** | **Detailed sampling method or not** | **Definite** **random sampling or not** | **Definite sampling time or not** | **Clear detection method or not** | **Four or more risk factors or not** | **Score** | **Study Quality** |
| 1 | Zhu (2015) | 456 | 0 | 0.0% | Cross sectional |  N\* | N | N | Y\* | Y | 2 | middle |
| 2 | Gilbert et al. (2013) | 240 | 2 | 0.8% | Cross sectional | Y | N | N | Y | Y | 3 | middle |
| 3 | Jacinto-Maldonado et al. (2019) | 116 | 3 | 2.6% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 4 | Woodhams et al. (2008) | 783 | 83 | 10.6% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 5 | Murrieta-Galindoet al. (2014) | 109 | 20 | 18.3% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 6 | Kärvemo et al. (2018) | 947 | 156 | 16.5% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 7 | Zumbado-Ulate et al. (2014) | 410 | 10 | 2.4% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 8 | Spitzen-van der Sluijs et al. (2017) | 1482 | 209 | 14.1% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 9 | Bell et al. (2011) | 166 | 39 | 23.5% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 10 | Cádiz et al. (2018) | 220 | 35 | 15.9% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 11 | Bresciano et al. (2015) | 60 | 13 | 21.7% | Cross sectional | Y | N | N | Y | Y | 3 | middle |
| 12 | Raffel et al. (2010) | 153 | 63 | 41.2% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 13 | Bai (2012) | 183 | 0 | 0.0% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 14 | Beard and O’Neill (2005) | 382 | 9 | 2.4% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 15 | Kaiser and Pollinger (2012) | 524 | 30 | 5.7% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 16 | Chatfield et al. (2012) | 98 | 33 | 33.7% | Cross sectional | Y | N | N | Y | Y | 3 | middle |
| 17 | Zhu et al. (2016) | 1073 | 12 | 1.1% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 18 | Coutinho et al. (2015) | 107 | 61 | 57.0% | Cross sectional | Y | N | N | Y | Y | 3 | middle |
| 19 | Wei et al. (2010) | 180 | 16 | 8.9% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 20 | Conradie et al. (2011b) | 76 | 14 | 18.4% | Cross sectional | N | N | Y | Y | Y | 3 | middle |
| 21 | Ocock et al. (2013) | 271 | 17 | 6.3% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 22 | Ribeiro et al. (2020) | 339 | 46 | 13.6% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 23 | Nava-González et al. (2019) | 412 | 282 | 68.4% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 24 | Flechas et al. (2012) | 244 | 41 | 16.8% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 25 | Muletz-Wolz et al. (2018) | 100 | 0 | 0.0% | Cross sectional | Y | N | N | Y | Y | 3 | middle |
| 26 | Saenz et al. (2014) | 130 | 64 | 49.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 27 | Savage et al. (2011) | 127 | 10 | 7.9% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 28 | Petersen et al. (2016) | 670 | 137 | 20.4% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 29 | Schlaepfer et al. (2007) | 112 | 42 | 37.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 30 | Ernetti et al. (2020) | 65 | 30 | 46.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 31 | Van Sluys and Hero (2010) | 280 | 118 | 42.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 32 | Zumbado-Ulate et al. (2019) | 348 | 190 | 54.6% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 33 | Rodríguez-Brenes et al. (2016) | 1695 | 159 | 9.4% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 34 | Voordouw et al. (2010) | 320 | 42 | 13.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 35 | Mendoza-Almeralla et al. (2016) | 160 | 12 | 7.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 36 | Oficialdegui et al. (2019) | 165 | 46 | 27..9% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 37 | Kilburn et al. (2011) | 879 | 202 | 23.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 38 | Muletz et al. (2014) | 606 | 4 | 0.7% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 39 | Bai et al. (2010) | 259 | 39 | 15.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 40 | Goka et al. (2009) | 2103 | 87 | 4.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 41 | Bataille et al. (2013) | 1863 | 330 | 17.7% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 42 | Whitfield et al. (2013) | 253 | 54 | 21.3% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 43 | Picco and Collins (2007) | 84 | 9 | 10.7% | Cross sectional | N | Y | Y | Y | Y | 4 | high |
| 44 | Goldberg et al. (2009) | 178 | 9 | 5.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 45 | Saenz et al. (2009) | 126 | 10 | 7.9% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 46 | Sánchez et al. (2008) | 649 | 323 | 49.8% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 47 | Lannoo et al. (2011) | 1306 | 217 | 16.6% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 48 | Puschendorf et al. (2011) | 291 | 240 | 82.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 49 | Kriger et al. (2007) | 863 | 228 | 26.4% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 50 | Stark et al. (2017) | 122 | 4 | 3.3% | Cross sectional | N | Y | Y | Y | Y | 4 | high |
| 51 | Lawson et al. (2011) | 207 | 32 | 15.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 52 | Kriger and Hero. (2007) | 519 | 157 | 30.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 53 | McMillan et al. (2020) | 2223 | 644 | 29.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 54 | Sette et al. (2020) | 328 | 22 | 6.7% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 55 | Kriger et al. (2006) | 467 | 148 | 31.7% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 56 | Peralta-García et al. (2018) | 199 | 94 | 47.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 57 | Hidalgo-Vila et al. (2012) | 625 | 60 | 9.6% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 58 | Ohst et al. (2013) | 3450 | 284 | 8.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 59 | Longo et al. (2010) | 525 | 336 | 64.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 60 | Forzán et al. (2010) | 114 | 30 | 26.3% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 61 | Goldberg et al. (2007) | 109 | 24 | 22.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 62 | Gründler et al. (2012) | 396 | 136 | 34.3% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 63 | Terrell et al. (2014) | 212 | 34 | 16.0% | Cross sectional | N | Y | Y | Y | Y | 4 | high |
| 64 | Vredenburg et al. (2012) | 300 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 65 | Weldon et al. (2018) | 527 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 66 | Pilliod et al. (2010) | 353 | 127 | 36.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 67 | Rahman et al. (2021) | 133 | 20 | 15.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 68 | Kolenda et al. (2017) | 255 | 46 | 18.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 69 | Frías-Alvarez et al. (2018) | 119 | 104 | 87.4% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 70 | Rebollar et al. (2014) | 203 | 49 | 24.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 71 | Richards-Hrdlicka et al. (2013) | 916 | 261 | 28.5% | Cross sectional | N | Y | Y | Y | Y | 4 | high |
| 72 | Rowley et al. (2007) | 274 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 73 | Mutnale et al. (2018) | 1870 | 158 | 8.4% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 74 | Bales et al. (2015) | 91 | 22 | 24.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 75 | Jaeger et al. (2017) | 376 | 26 | 6.9% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 76 | Rivera et al. (2019) | 215 | 17 | 7.9% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 77 | Labumbard et al. (2020) | 1444 | 523 | 36.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 78 | Zampiglia et al. (2013) | 469 | 66 | 14.1% | Cross sectional | N | Y | Y | Y | Y | 4 | high |
| 79 | Hunter et al. (2010) | 237 | 48 | 20.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 80 | Erismis et al. (2014) | 229 | 44 | 19.2% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 81 | Hardman et al. (2020) | 202 | 54 | 26.7% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 82 | Keitzer et al. (2011) | 278 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 83 | Group et al. (2016) | 155 | 26 | 16.8% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 84 | Valencia-Aguilar et al. (2015) | 90 | 39 | 43.3% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 85 | Aoust-Messier et al. (2015) | 482 | 84 | 17.4% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 86 | Canestrelli et al. (2013) | 80 | 56 | 70.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 87 | Federici et al. (2008) | 153 | 13 | 8.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 88 | Ficetola et al. (2011) | 60 | 1 | 1.7% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 89 | Kielgast et al. (2010) | 861 | 271 | 31.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 90 | Brannelly et al. (2017) | 526 | 413 | 78.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 91 | Penner et al. (2013) | 791 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 92 | Gower et al. (2012) | 120 | 51 | 42.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 93 | Bower et al. (2020) | 232 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 94 | Lötters et al. (2012) | 310 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 95 | Courtois et al. (2012) | 170 | 10 | 5.9% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 96 | Doherty-Bone et al. (2008) | 283 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 97 | Alemu et al. (2013) | 183 | 10 | 5.5% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 98 | Thien et al. (2013) | 123 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 99 | Ouellet et al. (2012) | 493 | 25 | 5.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 100 | Slough (2009) | 70 | 24 | 34.3% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 101 | Forrest et al. (2015) | 302 | 158 | 52.3% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 102 | Harner et al. (2013) | 161 | 50 | 31.1% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 103 | Gandola and Hendry (2013) | 195 | 0 | 0.0% | Cross sectional | Y | N | Y | Y | Y | 4 | high |
| 104 | Parrott et al. (2016) | 509 | 26 | 5.1% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |
| 105 | Ruggeri et al. (2017) | 141 | 61 | 70.4% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |
| 106 | Pearl et al. (2009) | 784 | 478 | 61.0% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |
| 107 | Pullen et al. (2010) | 916 | 109 | 11.9% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |
| 108 | Love et al. (2016) | 988 | 98 | 9.9% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |
| 109 | Conradie et al. (2011a) | 235 | 18 | 7.7% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |
| 110 | Hossack et al. (2010) | 756 | 7 | 0.9% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |
| 111 | Greenbaum et al. (2015) | 166 | 58 | 34.9% | Cross sectional | Y | Y | Y | Y | Y | 5 | high |

Y\*: Yes; N\*: No.

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**Figure S1** Forest plot illustrating *Batrachochytrium dendrobatidis* infection in amphibians worldwide.

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**Figure S2** Sensitivity analysis the stability of studies.