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SUPPLEMENTARY DATA

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SUPPLEMENTARY DATA

Supplementary Table 1. Appraisal of Study Methodology

| Quality Criteria | Maximum score |
|--|---------------|
| Representation of the general diabetes population. Participants selected should be representative of the general diabetes population of a defined area, and methods of achieving this may involve using population registries, electoral roles, inhabitants of a defined area, or people registered with general practices of a defined area. Participants attending health checkups or respondents to health screening invitations may be biased and cover only certain population groups | 1 point |
| Appropriate method of ascertaining diabetes population. Appropriate inclusion of all persons with diabetes is important for accurate DR prevalence estimates. This may be defined on the basis of a positive laboratory test (i.e. an oral glucose tolerance test or fasting blood glucose) and/or a self-reported history of physician's diagnosis and current diabetes treatment. A review of medical records or use of a national health registry to identify individuals with diabetes is also appropriate | 3 points |
| Appropriate assessment of outcome. In this case, retinal photography must be performed on all study participants diagnosed with diabetes. Retinal photography should not be limited to participants who have been diagnosed with DR from a clinical examination for where photographs served only as documentation of clinical findings | 1 point |
| Assessment of DR in both eyes. Studies that photographed only 1 randomly selected eye may miss detecting DR in the opposite eye | 2 points |
| Number of retinal fields photographed | 3 points |
| Photographic based grading of DR and DME based on standardized protocols and definitions, such as the ETDRS, modified ETDRS, modified Airlie House, WESDR, AAO or EURODIAB classification schemes | 1 point |

SUPPLEMENTARY DATA

Supplementary Table 2. Characteristics of Included Study Populations

| Study | Study Design | DM diagnosis | DR data provided | DME data provided | Methodology score |
|-----------------|-----------------|-----------------------------|---|-------------------|-------------------|
| ADDITION | DM study | OGTT | 2 eyes; 5 severity categories | 2 eyes | 9 |
| ARIC | CVD study | FBG/RBG/ SR | 1 eye; modified ETDRS | 1 eye | 8 |
| Aarhus | DM study | Registry | 2 eyes; 5 severity categories | 2 eyes | 9 |
| Andhra Pradesh | Eye study | SR | 1 eye; 5 severity categories | 2 eyes | 6 |
| AusDiab | DM study | OGTT/SR | 2 eyes; 5 severity categories | 2 eyes | 10 |
| BDES | Eye study | SR/RBG/HbA _{1C} | 2 eyes; modified ETDRS | 2 eyes | 11 |
| BES | Eye study | SR | 2 eyes; yes/no | No data | 7 |
| BMES | Eye study | FBG/SR | 2 eyes; ETDRS scale | 2 eyes | 10 |
| Beijing | Eye study | FBG/SR | 1 eye; ETDRS scale | 1 eye | 10 |
| CHS | CVD study | FBG/SR | 1 eye; ETDRS scale | 1 eye | 8 |
| CURES E.S. | Eye study | SR/2hBG | Worse eye; 5 severity categories | 1 eye | 10 |
| EDC | DM study | MR | 2 eyes; non-standard severity categories | 1 eye | 10 |
| EUREYE | Eye study | SR | 2 eyes; yes/no | No data | 7 |
| Funagata | Eye study | OGTT/SR | 1 eye; ETDRS scale | 1 eye | 8 |
| Fyn | DM study | Registry | 2 eyes; ETDRS scale | 2 eyes | 11 |
| Handan | Eye study | FBG/SR | 2 eyes; ETDRS scale | 2 eyes | 10 |
| Hisayama | Eye study | OGTT/SR | 2 eyes; non-standard severity categories | No data | 9 |
| Hoorn | DM study | OGTT/SR | 2 eyes; non-standard severity categories | 2 eyes | 10 |
| LALES | Eye study | SR/ HbA _{1C} / RBG | 1 eye; non-standard severity categories | 1 eye | 11 |
| MESA | CVD study | FBG/SR | 2 eyes; ETDRS scale | 2 eyes | 8 |
| MVIP | Eye study | SR | 1 eye; yes/no | 2 eyes | 8 |
| NHANES | National survey | SR/ HbA _{1C} | Worse eye; modified ETDRS | 2 eyes | 9 |
| New Jersey 725 | DM study | MR | 1 eye; modified ETDRS | 1 eye | 11 |
| Proyecto VER | Eye study | SR/ HbA _{1C} | Worst eye; modified ETDRS | 1 eye | 9 |
| Rotterdam | Eye study | SR/RBG/ 2hBG | 2 eye; yes/no | No data | 8 |
| SINDI | Eye study | RBG/SR | 1 eye; yes/no | 2 eyes | 10 |
| SNDREAMS | DR study | SR/ FBG | 1 eye; 5 severity categories | 1 eye | 11 |
| Samutsakhon | DM study | SR, HbA _{1C} | Worse eye; non-standard severity categories | No data | 9 |
| San Antonio | CVD study | OGTT, SR | 1 eye; non-standard severity categories | No data | 11 |
| San Luis Valley | DM study | OGTT , SR | Worse eye; modified ETDRS | 1 eye | 9 |
| Shihpai | Eye study | SR | Worse eye; 5 severity categories | 1 eye | 8 |
| SIMES | Eye study | RBG, SR | 2 eyes; 5 severity categories | 2 eyes | 10 |
| Turin | DM study | MR, registry | 1 eye; non-standard severity categories | 1 eye | 10 |
| UKADS | DM study | MR | 1 eye; non-standard severity categories | 1 eye | 9 |
| WESDR | DR study | MR | Worse eye; 5 severity categories | 1 eye | 11 |

Abbreviations: CVD, cardiovascular disease; DM, diabetes mellitus; DR, diabetic retinopathy; FBG, fasting blood glucose; Hx, history; MR, medical records; NR, not reported; OGTT, oral glucose tolerance test; RBG, random blood glucose; SR, self-report, which includes self-reported history of physician diagnosis or use of diabetes medications; Tx, treatment; 2hBG, 2-hour post-load blood glucose. ADDITION, Anglo-Danish-Dutch study of Intensive Treatment in People with Screen-detected Diabetes in Primary Care; ARIC, Atherosclerosis Risk in Communities Study; Andhra Pradesh, Andhra Pradesh Eye Disease

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Study; AusDiab, Australian Diabetes, Obesity and Lifestyle Study; BDES, Beaver Dam Eye Study; BES, Baltimore Eye Survey; BMES, Blue Mountains Eye Study; Beijing, Beijing Eye Study; CHS, Cardiovascular Health Study; CURES ES, Chennai Urban Rural Epidemiology Study (Eye Study); EDC, Pittsburgh Epidemiology of Diabetes Complications Study; EUREYE; European Eye Study; Funagata, Funagata Study; Handan, Handan Eye Study; Hisayama, Hisayama Study; Hoorn, Hoorn Study; LALES, Los Angeles Latino Eye Study; MESA, Multi-ethnic Study of Atherosclerosis; MVIP, Melbourne Vision Impairment Project; NHANES, National Health and Nutrition Examination Survey; Project VER, Proyecto Vision and Eye Research; Rotterdam, Rotterdam Study; SiMES, Singapore Malay Eye Study; SINDI, Singapore Indian Eye Study; SNDREAMS, Sankara Nethralaya Diabetic Retinopathy Epidemiology and Molecular Genetics Study; UKADS, UK Asian Diabetes Study; WESDR, Wisconsin Epidemiologic Study of Diabetic Retinopathy.

SUPPLEMENTARY DATA

Supplementary Table 3. Age-Standardized Prevalence of Diabetic Retinopathy by Study in Diabetic Subjects Aged 20 to 79 years

| Study | Eyes/ subject | Fields/ eye | Any DR | | PDR | | DME | | VTDR | | Age-Standardised Prevalence per 100 (95% CI) | | | |
|---------------|------------------|----------------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|--|----------------------|----------------------|----------------------|
| | | | N (tot) | N (DR) | N (tot) | N (DR) | N (tot) | N (DR) | N (tot) | N (DR) | Any DR | PDR | DME | VTDR |
| By Study | | | | | | | | | | | | | | |
| Aarhus | Both | 2 | 206 | 50 | 205 | 4 | 205 | 5 | 206 | 8 | 24.71 (23.08, 26.34) | 1.58 (1.33, 1.84) | 2.26 (1.94, 2.59) | 3.14 (2.78, 3.5) |
| ADDITION | Both | 2 | 534 | 61 | 534 | 0 | 533 | 5 | 534 | 5 | 9.53 (9.12, 9.95) | 0 (0, 0.66) | 0.91 (0.77, 1.04) | 0.9 (0.77, 1.04) |
| AndhraPradesh | One | 2 | 203 | 36 | 203 | 0 | 203 | 5 | 203 | 5 | 15.7 (14.91, 16.49) | 0 (0, 1.72) | 2.21 (1.91, 2.51) | 2.21 (1.91, 2.51) |
| ARIC | One | 1 | 1652 | 276 | 1550 | 14 | 1609 | 10 | 1652 | 23 | 14.13 (13.87, 14.39) | 0.84 (0.78, 0.91) | 0.54 (0.49, 0.59) | 1.27 (1.19, 1.35) |
| AusDiab | Both | 2 | 723 | 106 | 723 | 12 | 722 | 16 | 723 | 21 | 13.92 (13.33, 14.51) | 1.78 (1.52, 2.04) | 2.43 (2.08, 2.78) | 3.04 (2.69, 3.4) |
| BDES | Both | 3 | 454 | 146 | 454 | 8 | 451 | 13 | 454 | 19 | 25.64 (24.94, 26.35) | 1.18 (1.04, 1.32) | 2.22 (2.01, 2.42) | 3.14 (2.9, 3.38) |
| Beijing | One | 2 | 345 | 96 | 345 | 15 | 345 | 10 | 345 | 20 | 22.44 (21.66, 23.21) | 3.53 (3.23, 3.84) | 3.04 (2.73, 3.35) | 4.91 (4.54, 5.27) |
| BES | Both | 2 | 461 | 116 | NR | NR | NR | NR | NA | NA | 21.8 (21.19, 22.41) † | NR | NR | NA |
| BMES | Both | 6 | 244 | 62 | 243 | 4 | 244 | 12 | 244 | 15 | 22.71 (21.63, 23.79) | 1.49 (1.21, 1.77) | 4.46 (3.98, 4.95) | 5.75 (5.2, 6.31) |
| CHS | One | 1 | 247 | 41 | 221 | 6 | 243 | 5 | 247 | 8 | 6.32 (6, 6.63) | 1.03 (0.9, 1.17) | 0.78 (0.67, 0.89) | 1.23 (1.09, 1.37) |
| CURES E.S. | Worse | 4 | 1707 | 302 | 1707 | 16 | 1707 | 90 | 1707 | 106 | 17.69 (17.34, 18.04) | 1.03 (0.94, 1.12) | 5.14 (4.96, 5.33) | 6.17 (5.97, 6.38) |
| EDC | Both | 3 | 547 | 514 | 537 | 196 | 547 | 127 | 547 | 225 | 59.91 (57.89, 61.93) | 32.37 (30.8, 33.94) | 15.19 (14.17, 16.21) | 35.63 (34.01, 37.25) |
| EUREYE | Both | 2 | 559 | 109 | NR | NR | NR | NR | NA | NA | 7.42 (7.19, 7.65) † | NR | NR | NA |
| Funagata | One | 1 | 156 | 22 | 156 | 5 | 154 | 0 | 156 | 5 | 12.31 (11.38, 13.23) | 2.5 (2.1, 2.89) | 0 (0, 2.27) | 2.5 (2.1, 2.89) |
| Fyn | Both | 9 | 192 | 186 | 192 | 96 | 189 | 15 | 192 | 101 | 97.24 (92.97, 101.51) | 49.68 (46.66, 52.7) | 10.35 (8.35, 12.35) | 52.06 (49.02, 55.1) |
| Handan | Both | 2 | 366 | 98 | 366 | 6 | 183 | 20 | 366 | 21 | 25.04 (24.08, 26) | 2.14 (1.65, 2.62) | 11.7 (10.27, 13.14) | 5.76 (5.2, 6.32) |
| Hisayama | Both | 1 | 274 | 43 | 274 | 5 | NR | NR | NA | NA | 13.06 (12.36, 13.75) † | 0.95 (0.81, 1.08) | NR | NA |
| Hoon | Both | 2 | 125 | 30 | 125 | 1 | NR | NR | NA | NA | 19.64 (18.28, 20.99) † | 0.39 (0.26, 0.51)* | NR | NA |
| LALES | One | 7 | 1190 | 562 | 1188 | 73 | 1183 | 126 | 1190 | 167 | 40.03 (39.51, 40.54)* | 5.25 (5.07, 5.44) | 8.99 (8.75, 9.24) | 11.91 (11.63, 12.19) |
| MESA | Both | 2 | 850 | 216 | 849 | 20 | 828 | 67 | 850 | 76 | 22.64 (22.14, 23.15) | 1.96 (1.82, 2.11) | 6.81 (6.53, 7.08) | 7.59 (7.3, 7.88) |
| MVIP | Both | 2 | 211 | 60 | 211 | 9 | 211 | 14 | 211 | 18 | 24.55 (23.48, 25.61) | 4.71 (4.21, 5.22) | 5.04 (4.58, 5.5) | 7.99 (7.36, 8.61) |
| NewJersey725 | One | 7 | 355 | 253 | 348 | 46 | 355 | 48 | 355 | 75 | 54.44 (52.74, 56.15) | 16.88 (15.88, 17.88) | 14.58 (13.66, 15.49) | 25.92 (24.69, 27.15) |
| NHANES | Worse | 2 | 937 | 268 | 937 | 22 | 935 | 35 | 937 | 54 | 24.14 (23.68, 24.59) | 1.83 (1.7, 1.95) | 3.25 (3.08, 3.42) | 4.76 (4.56, 4.96) |
| ProyectoVER | One | 3 | 885 | 424 | 883 | 57 | 875 | 66 | 885 | 102 | 40.14 (39.54, 40.73) | 5.35 (5.14, 5.57) | 6.4 (6.16, 6.64) | 9.68 (9.39, 9.97) |
| Rotterdam | Both | 2 | 486 | 76 | NR | NR | NR | NR | NA | NA | 13.91 (13.11, 14.72) † | NR | NR | NA |
| SAHS | One | 7 | 381 | 153 | 381 | 16 | NR | NR | NA | NA | 38.31 (37.29, 39.32) † | 3.96 (3.65, 4.26) | NR | NA |
| Samutsakhon | One | 7 | 96 | 11 | 96 | 3 | NR | NR | NA | NA | 10.02 (9.1, 10.93) † | 2.43 (1.98, 2.87) | NR | NA |
| SanLuisValley | Worse | 3 | 392 | 129 | 389 | 17 | 368 | 11 | 392 | 23 | 33.64 (32.44, 34.83) | 4.3 (3.92, 4.69) | 2.74 (2.49, 2.99) | 5.66 (5.24, 6.09) |
| Shihpai | Worse | 2 | 139 | 18 | 139 | 3 | 139 | 7 | 139 | 10 | 4.93 (4.56, 5.3) | 0.82 (0.67, 0.97) | 1.92 (1.69, 2.15) | 2.74 (2.46, 3.01) |
| SiMES | Both | 2 | 757 | 268 | NR | NR | 757 | 44 | NA | NA | 29.47 (28.9, 30.03) | NR | 4.69 (4.46, 4.91) | NA |
| SINDI | One | 2 | 1075 | 163 | NR | NR | 1075 | 44 | NA | NA | 12 (11.71, 12.29) | NR | 3.57 (3.41, 3.74) | NA |
| SNDREAMS | One | 4 | 1393 | 261 | 1393 | 21 | 1393 | 46 | 1393 | 59 | 15.95 (15.65, 16.26) | 1.33 (1.24, 1.42) | 2.82 (2.7, 2.95) | 3.67 (3.52, 3.82) |
| Turin | One | 2 | 310 | 131 | 310 | 9 | 310 | 24 | 310 | 33 | 69.13 (56.97, 81.3) | 3.74 (3.24, 4.24) | 5.46 (4.89, 6.02)* | 9.2 (8.44, 9.96) |
| UKADS | One | 2 | 910 | 369 | 910 | 127 | 910 | 94 | 910 | 127 | 39.74 (38.61, 40.87) | 13.96 (13.24, 14.68) | 10.38 (9.78, 10.98) | 13.96 (13.24, 14.68) |
| WESDR | Worse | 7 | 1930 | 1292 | 1930 | 331 | 1577 | 212 | 1930 | 427 | 66.59 (65.94, 67.24) | 18.01 (17.67, 18.36) | 14.21 (13.88, 14.54) | 23.35 (22.96, 23.74) |

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Abbreviations: DME: Diabetic Macular Edema; DR: Diabetic Retinopathy; NR: Not reported; NA: Not applicable; PDR: Proliferative Diabetic Retinopathy; VTDR: Vision-threatening Diabetic Retinopathy. ADDITION, Anglo-Danish-Dutch study of Intensive Treatment in People with Screen-detected Diabetes in Primary Care; ARIC, Atherosclerosis Risk in Communities Study; Andhra Pradesh, Andhra Pradesh Eye Disease Study; AusDiab, Australian Diabetes, Obesity and Lifestyle Study; BDES, Beaver Dam Eye Study; BES, Baltimore Eye Survey; BMES, Blue Mountains Eye Study; Beijing, Beijing Eye Study; CHS, Cardiovascular Health Study; CURES ES, Chennai Urban Rural Epidemiology Study (Eye Study); EDC, Pittsburgh Epidemiology of Diabetes Complications Study; EUREYE, European Eye Study; Funagata, Funagata Study; Handan, Handan Eye Study; Hisayama, Hisayama Study; Hoorn, Hoorn Study; LALES, Los Angeles Latino Eye Study; MESA, Multi-ethnic Study of Atherosclerosis; MVIP, Melbourne Vision Impairment Project; NHANES, National Health and Nutrition Examination Survey; Proyecto VER, Proyecto Vision and Eye Research; Rotterdam, Rotterdam Study; SiMES, Singapore Malay Eye Study; SINDI, Singapore Indian Eye Study; SNDREAMS, Sankara Nethralaya Diabetic Retinopathy Epidemiology and Molecular Genetics Study; UKADS, UK Asian Diabetes Study; WESDR, Wisconsin Epidemiologic Study of Diabetic Retinopathy.

† Our 'any DR' definition includes DME information. Studies that did not provide DME data (BES, EUREYE, Hisayama, Hoorn, Rotterdam, SAHS and Samutsakhon) may have higher prevalence estimates for any DR than that reported here.