

Supplementary File 1. Search Strategy

| Key Concepts | Concept 1 | Concept 2 |
|---|--|--|
| | Time in Range | Diabetic Retinopathy |
| Controlled vocabulary terms / Subject terms | "Blood Glucose Self-Monitoring" [MeSH Term] | "Diabetic Retinopathy" [MeSH Term] |
| Free text terms / natural language terms | "Time in range" [Text Word], "Continuous Glucose Monitoring" [Text Word], "Glucose variability" [Text Word], "Glycemic variability" [Text Word] | "Proliferative Diabetic Retinopathy" [Text Word], "Non-proliferative Diabetic Retinopathy" [Text Word], "Diabetic Macular Edema" [Text Word] |

Draft Entry EBSCO Search (Identified Articles: 125) 13/8/2023

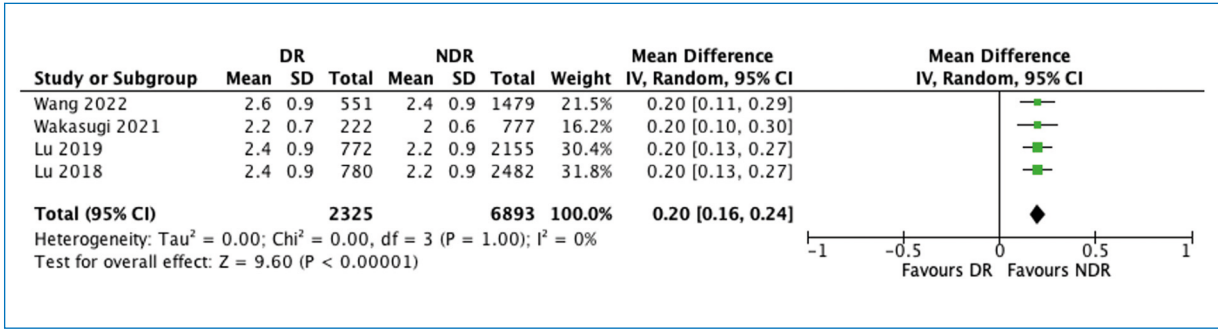
| No. | Entry | Filter | Total Findings |
|-----|--|-----------|----------------|
| 1 | SU "blood glucose self-monitoring" OR TX "Time in range" OR TX "Continuous Glucose Monitoring" OR TX "Glucose variability OR TX "glycemic variability" | | 17 704 |
| 2 | SU "Diabetic Retinopathy" OR TX "proliferative diabetic retinopathy" OR TX "Non-proliferative Diabetic Retinopathy" OR TX "Diabetic Macular Edema" | | 45 205 |
| 3 | S1 AND S2 | | 261 |
| 4 | S1 AND S2 | 10 years | 179 |
| 5 | S1 AND S2 | Full text | 125 |

Draft Entry PubMed Search (Identified Articles:54) 13/8/2023

| No. | Entry | Filter | Total Findings |
|-----|--|---------------|----------------|
| 1 | ((("Blood Glucose Self-Monitoring"[MeSH Terms]) OR ("Time in range"[Text Word])) OR ("Continuous glucose monitoring"[Text Word])) OR ("Glucose variability"[Text Word]) OR ("Glycemic variability"[Text Word]) | | 12 187 |
| 2 | ((diabetic retinopathy[MeSH Terms]) OR ("Proliferative Diabetic Retinopathy"[Text Word])) OR ("Non-Proliferative Diabetic Retinopathy"[Text Word]) OR ("Diabetic Macular Edema"[Text Word]) | | 32 280 |
| 3 | S1 AND S2 | | 115 |
| 4 | S1 AND S2 | Last 10 years | 54 |

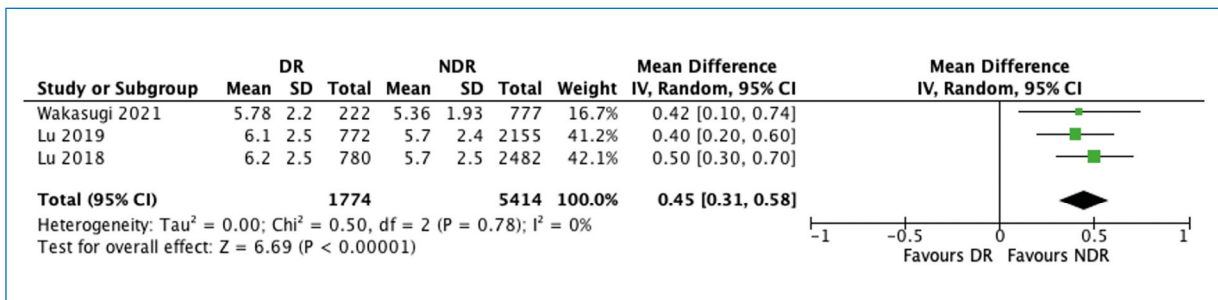
Draft Entry ProQuest Search (Identified Articles: 401) 13/8/2023

| No. | Entry | Filter | Total Findings |
|-----|--|-------------------|----------------|
| 1 | MAINSUBJECT.EXACT("Glucose monitoring") OR fulltext("Time in range") OR fulltext("Continuous glucose monitoring") OR fulltext("Glucose variability") OR fulltext("Glycemic variability") | | 23 821 |
| 2 | mainsubject("Diabetic retinopathy") OR fulltext("Proliferative Diabetic Retinopathy") OR fulltext("Non-proliferative Diabetic Retinopathy") OR fulltext("diabetic macular oedema") | | 52 387 |
| 3 | S1 AND S2 | | 525 |
| 4 | S1 AND S2 | last 10 years | 467 |
| 5 | S1 AND S2 | scholarly journal | 401 |



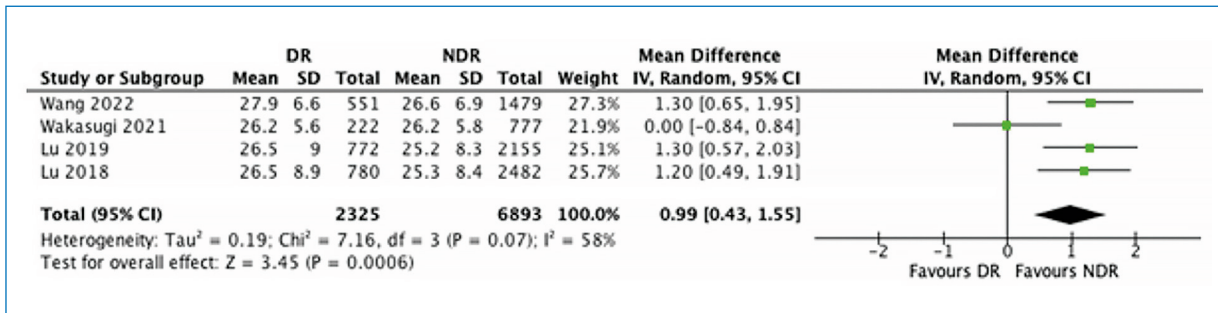
Supplementary File 2. SD and Diabetic Retinopathy

CI — confidence interval; DR — diabetic retinopathy; NDR — non-diabetic retinopathy; SD — standard deviation



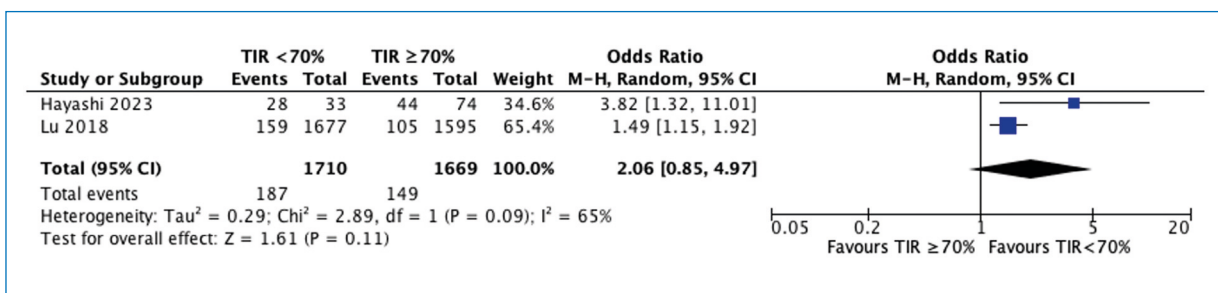
Supplementary File 3. MAGE and Diabetic Retinopathy

CI — confidence interval; DR — diabetic retinopathy; MAGE — mean amplitude of glucose excursion; NDR — non-diabetic retinopathy; SD — standard deviation



Supplementary File 4. CV and Diabetic Retinopathy

CI — confidence interval; CV — coefficient of variability; DR — diabetic retinopathy; NDR — non-diabetic retinopathy; SD — standard deviation



Supplementary File 5. TIR < 70% and Risk of Diabetic Retinopathy

CI — confidence interval; TIR — time in range

Supplementary File 6. Risk of Bias

Newcastle-Ottawa Scale

| Study | Selection | | | | Comparability | Outcome | | | Total |
|-----------------|--|-------------------------------------|---------------------------|--|---|-----------------------|---|----------------------------------|-------|
| | Representativeness of the exposed cohort | Selection of the non-exposed cohort | Ascertainment of exposure | Demonstration that outcome of interest was not present at start of study | Comparability of cohorts on the basis of the design or analysis | Assessment of outcome | Was follow-up long enough for outcomes to occur | Adequacy of follow-up of cohorts | |
| Wakasugi (2021) | * | * | * | * | * | * | * | * | 8/8 |
| Lu (2019) | * | * | * | * | * | * | * | * | 8/8 |

Newcastle-Ottawa Scale (adapted for cross sectional studies)

| Study | Selection | | | | Comparability | Outcome | | Total |
|----------------|----------------------------------|-------------|----------------|---|---|-----------------------|------------------|-------|
| | Representativeness of the sample | Sample size | Non-respondent | Ascertainment of the exposure (risk factor) | Comparability of cohorts on the basis of the design or analysis | Assessment of outcome | Statistical test | |
| Hayashi (2023) | * | * | * | ** | * | ** | * | 9/9 |
| Wang (2022) | * | * | * | ** | * | ** | * | 9/9 |
| Lu (2018) | * | * | * | ** | * | ** | * | 9/9 |