INPLASY PROTOCOL

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Review Stage at time of this submission: **Formal screening of search results against eligibility criteria.**

Conflicts of interest:
None declared.

The impact of telehealth remote patient monitoring on glycemic control in type 2diabetes: an updated meta-analysis of randomised controlled trials

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Review question / Objective: **The impact of telehealth remote patient monitoring on glycemic control in type 2 diabetes: an updated meta-analysis of randomised controlled trials.**
Condition being studied: **Research in a mounting number supports the use of telehealth in monitoring and managing HbA1c and fasting plasma glucose (FPG) levels in patients living with type 2 diabetes. However, the overall magnitude of effect is yet unclear due to variable results reported in existing systematic reviews. The objective of this study is to conduct a systematic review and meta-analysis of systematic reviews of randomised controlled trials to create an evidence-base for the effectiveness of telehealth interventions on glycemic control in adults with type 2 diabetes.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 May 2022 and was last updated on 01 May 2022 (registration number INPLASY202250001).

INTRODUCTION

Review question / Objective: **The impact of telehealth remote patient monitoring on glycemic control in type 2 diabetes: an updated meta-analysis of randomised controlled trials.**

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METHODS

Search strategy: Three online databases, including PubMed, Embase databases and Cochrane Collaboration were searched by two independent authors for the eligible studies up to March 20th,2022 with no language restriction. Both MeSH and keywords were searched: [type 2 diabetes OR diabetes mellitus] AND [telehealth OR telemedicine]) AND (Randomised controlled trial OR randomized controlled trial or RCT).

Participant or population: Individuals diagnosed with T2DM.

Intervention: Types of intervention were defined as telehealth interventions, either desktop, laptop, mobile phones or other wireless tools.

Comparator: The standard outpatient care.

Study designs to be included: Randomised controlled clinical trials.

Eligibility criteria: Two researchers independently assessed the eligibility of the literature according to the inclusion above criteria. All discrepancies were resolved through discussion or by a third researcher as necessary.

Information sources: PubMed, Embase databases and Cochrane Collaboration.

Main outcome(s): "HbA1c" OR "Fasting plasma glucose (FPG)".

Quality assessment / Risk of bias analysis: The methodological quality of the RCTs was assessed independently by two researchers using the Cochrane Collaboration's Risk of Bias tool15. Estimates were pooled using a generic invariance-weighted random-effects models to consider the between-study heterogeneity. Mean differences (MD) was used for continuous estimates. RevMan5.3 (Review Manager [RevMan], version 5.3, Cochrane Collaboration) software was used for statistical data processing. A funnel plot was used to test for the presence of publication bias, and P value < 0.05 was considered statistically significant.

Strategy of data synthesis: Using the mean changes of the HbA1c, fasting plasma of follow-up and the respective mean differences (MD) of the treatment arm and usual arm, standardized mean differences (SMD) or MD and their 95% confidence intervals (CIs) were calculated and synthesized. To assess the heterogeneity across studies, the I2 (95% CI) statistic was calculated with the following interpretation: low heterogeneity, defined as I2 < 50%; moderate heterogeneity, defined as I2 50% to 75%; and high heterogeneity, defined as I2 >75.

Subgroup analysis: If necessary, we will conduct subgroup analysis on the factors that may lead to the source of heterogeneity, such as the number of cases, age, telehealth applications and feedback methods.

Sensitivity analysis: Sensitive analysis by fixed model or omitting one study at one generated confirmed result.

Country(ies) involved: China.

Keywords: Telehealth, Type 2 diabetes mellitus, Blood glucose, Remote.

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