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Background

- Diabetes is increasing globally and lower extremity amputations (LEA) are complications of this condition.
- Depression is reported to be more common in people with diabetes, although the aetiology is multifactorial.
- The number of people being diagnosed with diabetes is increasing worldwide (estimated at 11%), but the impact of depression in this group on the risk of amputation is largely unknown.

Objective

To collect and interpret the relationship between depression in people with diabetes and the risk of amputation from the existing published literature and to meta-analyse the findings from eligible studies.

Methods

Databases searched: CINAHL; the Cochrane Library; Embase; Medline; PubMed; the Cochrane Database of Systematic Reviews and PsycARTICLES from inception until April 21stth 2015; using a detailed search-strategy (including PRISMA guidelines) and cross-checking of reference lists.

Eligibility criteria: Randomised and non-randomised studies in which depression was measured at baseline and amputation was an outcome measure after a period of follow up. In total, seven studies met the inclusion criteria for the systematic review 1 RCT, 1 retrospective cohort and 5 prospective cohort design studies – all in English language.

Primary outcome: Reporting of LEAs included in any study which examined the risk of amputation in people with diabetes and depression compared to people with diabetes and no depression.

Data synthesis: Two reviewers independently reviewed titles using a standardized data abstraction form and assessed study quality using the Critical Appraisal Skills Program (CASP) tool.

Meta-analysis: Random-effect models were generated using Review Manager version 5.1 software and two sensitivity analyses were done.

Results

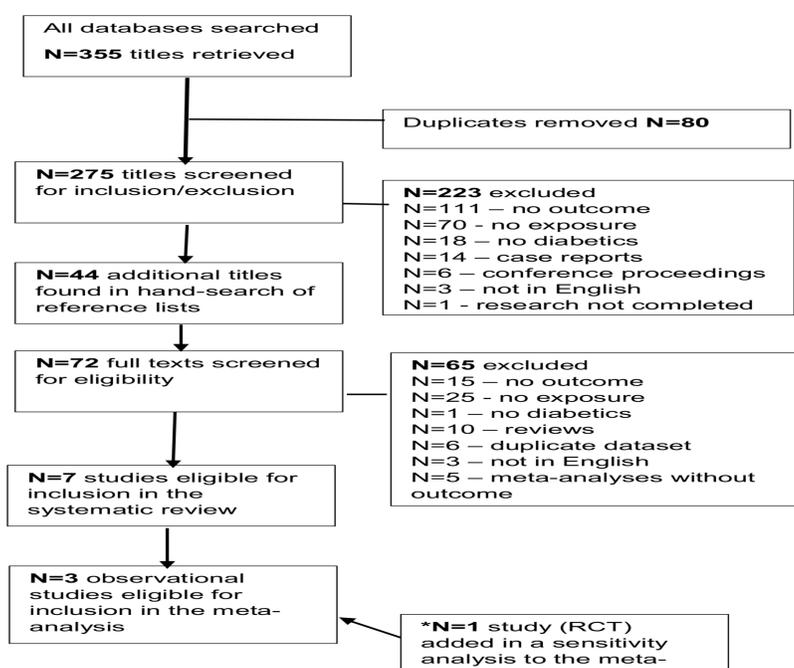


Figure 1: Selection of studies for inclusion in the systematic review and meta-analysis

Study characteristics

- Study had 765,981 people with diabetes and including 87,923 (11.5%) with diabetes and comorbid depression.
- The seven studies conducted were in the UK (2 studies), USA (3 studies), Australia (1 study) and Sweden (1 study).
- Two studies assessed clinical depression, four studies assessed depression by self-report and one did not confirm the method of assessment of depression. Different tools of depression were used.
- The observed length of follow-up varied from 6 months to 7 years with a mean follow-up of 3 years.

Key Findings

- Meta-analysis of three studies suggested that people with diabetes and depression had an increased hazard of amputation (HR 2.13, 95% CI 0.85, 5.35) compared to those without depression.
- Two sensitivity analyses were conducted due to heterogeneity between the studies- the pooled estimates were: HR=1.40 (95% CI 0.77, 2.54) and HR = 1.48 (95% CI 1.08, 1.28), respectively.

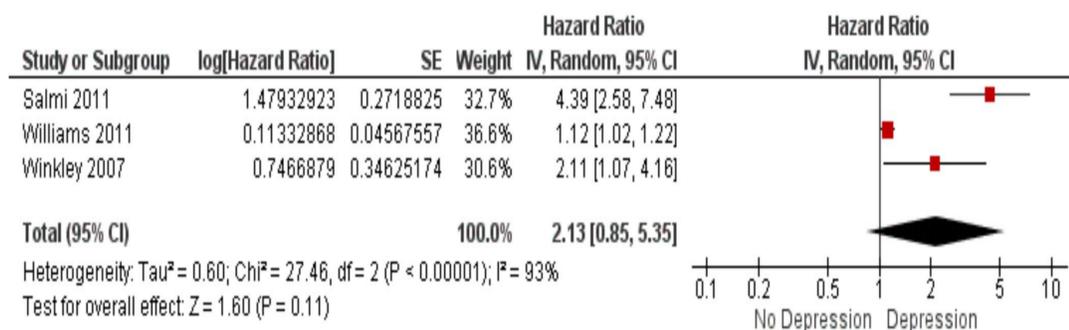


Figure 2 : Random-effect model of the risk of amputation in diabetics associated with depression compared to no depression from three published studies

Conclusions

- Depression appears to have an unfavourable effect in people with diabetes for the risk of amputation.
- Limited data are available and given the significant heterogeneity between studies and the need for studies of a more robust methodological quality, the current findings need to be interpreted with caution.
- Further research is needed to inform intervention and clinical practice development in the management of diabetes.

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