

Research Article

Prevention and Management of Diabetes-Related Foot Ulcers through Informal Caregiver Involvement: A Systematic Review

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Background. The literature remains unclear whether involving informal caregivers in diabetes self-care could lead to improved diabetic foot outcomes for persons at risk and/or with foot ulcer. In this review, we synthesized evidence of the impact of interventions involving informal caregivers in the prevention and/or management of diabetes-related foot ulcers. **Methods.** A systematic review based on PRISMA, and Synthesis Without Meta-analysis (SWiM) guidelines was conducted. MEDLINE (Ovid), Embase (Ovid), PsycINFO, CINAHL, and Cochrane Central Register of Controlled Trial of the Cochrane Library databases were searched from inception to February 2021. The following MESH terms were used: diabetic foot, foot ulcer, foot disease, diabetes mellitus, caregiver, family caregiver, and family. Experimental studies involving persons with diabetes, with or at risk of foot ulcers and their caregivers were included. Data were extracted from included studies and narrative synthesis of findings undertaken. **Results.** Following the search of databases, 9275 articles were screened and 10 met the inclusion criteria. Studies were RCTs ($n = 5$), non-RCTs ($n = 1$), and prepoststudies ($n = 4$). Informal caregivers through the intervention programmes were engaged in diverse roles that resulted in improved foot ulcer prevention and/or management outcomes such as improved foot care behaviors, increased diabetes knowledge, decreased HbA1c (mmol/mol or %), improved wound healing, and decreased limb amputations rates. Engaging both caregivers and the person with diabetes in education and hands-on skills training on wound care and foot checks were distinctive characteristics of interventions that consistently produced improved foot self-care behavior and clinically significant improvement in wound healing. **Conclusion.** Informal caregivers play diverse and significant roles that seem to strengthen interventions and resulted in improved diabetes-related foot ulcer prevention and/or management outcomes. However, there are multiple intervention types and delivery strategies, and these may need to be considered by researchers and practitioners when planning programs for diabetes-related foot ulcers.

1. Introduction

Diabetes mellitus is among the top four noncommunicable diseases (NCD) targeted for action under the Sustainable Development Goals by the United Nations in 2015. Thus, all member countries are required to reduce premature death due to NCD by a third before 2030 [1]. Over 460 million people had diabetes in 2019, and this number has been estimated to rise to 578 million and 700 million by 2030 and

2045, respectively [2]. This high prevalence of diabetes and its complications puts pressure on global health expenditure. For instance, in 2017, the global health expenditure was estimated at over 7 billion USD with around 4 million diabetes related deaths [3].

One of the commonest and most debilitating complications of diabetes is diabetic foot ulcer (DFU) [4]. People with diabetes have a lifetime risk of up to 25% of developing DFU, and this greatly increases their chances of lower limb