

# Foot ulcers associated with external trauma among people with diabetes: An integrative review of the origin of trauma and outcomes

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## Abstract

**Background:** Foot ulcers are common among people with diabetes. These ulcers are caused by a number of factors including trauma. To date, research findings on the origin of external trauma and the outcome of foot ulcers resulting from an external trauma have not been summarised.

**Objective:** To examine the origin of external trauma that contribute to the development of foot ulcers among people with diabetes and the outcome of such ulcers.

**Design:** An integrative review

**Settings:** Hospital/community

**Participants:** Patients with diabetes and foot ulcer

**Method:** The Joanna Briggs framework was used to underpin this integrative review. Six different databases (CINAHL+, Medline, SCOPUS, Embase, ProQuest and Web of Science databases) were searched systematically to find research publications reporting traumas that contributed to foot ulcers sustained by people with diabetes. The search was limited to articles published in English. The search revealed 3193 articles that were filtered to 78 articles to be assessed at the full-text level and 45 articles were subsequently included. Quality appraisal was conducted independently by two reviewers, using the Joanna Briggs Institute (JBI) Critical Appraisal tools. Data were extracted into a form developed for the purpose of this review. Narrative synthesis was used to manage the extracted verbatim details on the origin of external trauma contributing to foot ulcers and the outcomes.

**Results:** The origins of external trauma were summarised into two domains and further specified into 16 categories. The identified traumas were mainly minor and originated within the home environment. The most commonly reported origins of external trauma were puncture wounds, ill-fitting shoes and self-care practices that caused foot ulcers. Twenty-seven studies reported outcomes following the development of an ulcer. Twenty-two studies reported amputation as an outcome and mortality was reported in 10 studies. It was not clear whether these outcomes were directly related to the foot ulcer or related to other diabetes-related complications.

**Conclusions:** The majority of ulcers occurred in the home environment and were preventable in nature. The assessment of an individual's local context, particularly the home and actions to reduce risk is a priority. The extent of the risks related to external trauma need to be more widely communicated through clinical guidelines and training opportunities for frontline staff.

## Biography

Ma'en Abu-Qamar is a registered nurse and holds a Doctor of Nursing degree from the University of Adelaide. His research interest is in diabetes care, mainly prevention of diabetic foot ulcers. In his doctoral degree, Ma'en investigated burn injuries to patients with diabetes. After graduating, Ma'en joined the faculty of nursing at Mu'tah University Jordan, where he continued his research in the field of diabetic foot care. Ma'en has several publications in this field in peer reviewed journals which led to his promotion as associate professor, Faculty of Nursing, Mu'tah University. Ma'en held a position at Curtin University's School of Nursing and Midwifery before joining ECU. At ECU, Ma'en has led several systematic reviews including an integrative review of research publications reporting external traumas contributing to foot ulcers among people with diabetes. Ma'en has supervised higher degree research students and has also acted as an external examiner for several research theses.

4<sup>th</sup> International Conference on Wound Care, Tissue Repair and Regenerative Medicine, Webinar | 08-10 March 2021

**Citation:** Ma'en Zaid Abu Qamar, *Foot ulcers associated with external trauma among people with diabetes: An integrative review of the origin of trauma and outcomes*, Wound Care 2021, 4th International Conference on Wound Care, Tissue Repair and Regenerative Medicine, Webinar, March 08 & 10, 2021, 04:01-03