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Edward, Karen-Leigh and Ousey, Karen

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# Exploring resilience for people with type 2 diabetes who have a wound

## KEY WORDS

- ▶ Diabetes
- ▶ Type 2
- ▶ Wounds
- ▶ Wound healing
- ▶ Resilience
- ▶ Self-management

Comorbidities related to diabetes such as chronic wounds can increase the need for surgical procedures, with at least 10% of all patients undergoing surgery having diabetes. Being diagnosed with diabetes can be seen as a risk factor for developing wound healing problems. **Discussion:** This short report highlights the potential positive influences gained from providing resilience education and self-management education to people with type 2 diabetes, potentially enhancing self-managing abilities and reducing poor wound healing. **Summary:** Modern wound care practice is centred on symptom reduction and working with pathology; however, working with people to enhance their personal resilience and promoting positive psychological adaptation can impact positively on their mental health.

As a chronic condition diabetes is endemic, where the prevalence of diabetes in England in 2013 was 3.2 million people (with an estimated 630,000 undiagnosed cases) (Holman et al, 2014) and in Australia affects approximately one million people (Australian Bureau of Statistics, 2014). Concomitant factors such as obesity, comorbidity and poor homeostatic control place a significant number of people with diabetes at risk of developing both micro and macro complications (Huxley et al, 2006), resulting in accelerated mortality and economic burden (Lee et al, 2013). The complications arising from having a diabetes diagnosis are most evident in hospital admissions where, regardless of the cause for admission, people with diabetes experience a prolonged length of stay. For those who have a wound, the complications of diabetes escalate. For example, neuropathy and ischaemia can lead to foot ulceration, unstable blood sugars, and increased risk of infection, potentially resulting in surgery for lower-limb amputations. Unsurprisingly, at least 10% of all patients undergoing surgery have diabetes. In consideration of the World Health Organisation (WHO) position on attending to the mental health and physical needs of mental health consumers (WHO, 2013), care for people living with serious mental illness still needs to improve in this area. When chronic conditions are comorbid (such as mental

illness, diabetes and diabetes-related wounds), quality of life can be reduced. Quality of life is associated with the individual's perception of their own life and in this context the importance of working with people in building their personal self-righting capabilities — i.e. resilience — is heightened (Edward et al, 2010). The purpose of this short communication is to elucidate the potential positive influences from enhancing resilience and self-management for people with type 2 diabetes who have a diabetes-related or influenced wound towards positive psychological adaptation. Since this article was a review of the literature and no primary research was undertaken ethical approval was not required.

## UNDERSTANDING THE COST OF DIABETES

There are approximately 347 million people living with diabetes worldwide, with a predicted increase to almost 552 million people by 2030 (WHO, 2014). The WHO also predicts that diabetes will be the 7th leading cause of death by 2030. Type 2 diabetes accounts for between 85 and 95 per cent of cases in high-income regions, but is estimated to be much higher in regions of lower income. In the UK, a point prevalence estimate of 3.9% people with diabetes has been suggested, with this rising to above 15% in certain ethnic minority origin communities.

**KAREN-LEIGH EDWARD**  
Associate Professor of Nursing  
Research, Nursing Research Unit  
Faculty of Health Sciences,  
Australian Catholic University;  
Director/Chair, St Vincent's  
Private Hospital Melbourne,  
Australia

**KAREN OUSEY**  
Reader Advancing Clinical Prac-  
tice, Ramsden Building, School  
of Human and Health Sciences,  
University of Huddersfield,  
Huddersfield

Similarly, recent information about the incidence of diabetes in Australia according to the Australian Institute of Health and Welfare (AIHW, 2014) revealed over 4% of the population had diabetes, an increase from 1.5% prevalence in 1989. In 2012, 8.2 million pharmaceutical scripts were claimed for diabetes, with diabetes healthcare expenditure accounting for 2.3% of all health expenditure in Australia. The Australian hospital statistics 2012–13 (AIHW, 2014) revealed that there were 2.5 million admissions that involved surgery; of these 2 million were elective and 67% of these were undertaken in a private hospital. Potentially preventable hospitalisations were identified as relating to conditions that theoretically would not result in hospitalisation if adequate and timely non-hospital care was received. These included such conditions as appendicitis, dehydration, asthma and diabetes. Diabetes complications resulting in hospitalisations during the 2012–13 period in Australia accounted for over 200,000 hospital separations and is also listed in the top 20 common principal diagnoses for emergency admissions involving surgery in both public and private hospitals during the 2012–13 period. Alarming, reported type 2 diabetes in all diagnoses (either as principal diagnosis or a comorbidity) has jumped from approximately 500,000 diagnoses in the period 2008–9 to over 1 million in 2012–13 (AIHW, 2014). Diabetes is associated with adverse events following surgery, which include: increased length of stay, morbidity rates and inpatient costs. They are well recognised, such that the excess bed days were recently estimated to be 45% greater for surgical patients with diabetes, and of significance, the surgical mortality rate is up to 50% higher than that of the non-diabetic population (Frisch et al, 2010).

### STRESS AND WOUND MANAGEMENT

The immunosuppressive effects of diabetes and its impact on healthy wound healing (Shupp and Moffatt, 2014) are of consideration for people with diabetes. Often when a person with diabetes is inflicted with an acute wound it can develop into a chronic or infected wound due to poor healing as part of their condition. The burden of chronic wounds is well known, including the impact on both physical and psychological wellbeing due to the multiple effects of pain, reduced mobility, poor circulation and stigma. The pathophysiology of healing in both acute and chronic wounds is still an area of scientific examination, as little is known

about the interplay of mental state on wound healing. The available evidence suggests that a person's perception of their wounds contributes to healing, and wound healing can be negatively impacted by stress (Gouin and Kiecolt-Glaser, 2011). A recent systematic review with meta-analysis (Walburn et al, 2009) reported that stress was significantly associated with impaired healing ( $r=0.42$ ;  $P<0.01$ ). When people have an active involvement in the care of their wounds, however, outcomes are often improved (Broadbent and Koschwanez, 2012). Active participation of consumers in healthcare services, healthcare developments and individual care can lead to improved healthcare outcomes. Use of health-related education to build knowledge and mastery can offer a vehicle for patients to become more engaged in their care, improve clinical outcomes and enhance personal resilience.

### THE IMPORTANCE OF BUILDING RESILIENCE

Modern health practice is centred on symptom reduction and working with pathology; however, working with people's resilience has not been a consideration. In light of the noticeable absence of a focus on psychological resilience as a method of intervention, and a scarcity of research on resilience in relation to resistance to the stress of chronic conditions, the findings of a study undertaken by Edward et al (2009) has the potential to make a substantive contribution to existing knowledge on the topic. The results of Edward et al's study (2009) identified how being resilient was experienced by people through sharing their experience with others and realising they were not alone, and an acceptance of self, others and the situation were integral to going beyond the negative impact of being in poor health. Edward (2013) later offers a model for conceptualising and building resilience in people with chronic conditions (such as mental illness, cardiac conditions and diabetes). In practice this is underpinned by the premise that when individuals believe life events and outcomes are manageable, learned helplessness is avoided and active attempts are made by the individual to overcome aversive situations, opening the possibility of moving forward and achieving resilience (Edward, 2013; 2014). By being resilient, individuals have the power to adjust, resist stress and potentially thrive in the face of adversity (Edward, 2005b). For healthcare professionals, exploration of resilience included in

*“The complications arising from having a diabetes diagnosis is most evident in hospital admissions where regardless of the cause for admission, people with diabetes experience a prolonged length of stay.”*

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- the assessment phase of the health care continuum could offer a basis for clinical interventions that can assist the person to move beyond the difficulties of their condition. The International Diabetes Federation (IDF, 2012) recognised that psychological wellbeing and working with people and people's strength were important goals of medical care, and psychosocial factors are relevant to a wide range of considerations in diabetes management.

### SELF-MANAGEMENT TO REDUCE WOUND COMPLICATIONS

Chronic conditions such as diabetes require a considerable amount of patient involvement for effective self-management, improving knowledge and for making healthy lifestyle choices. For people living with type 2 diabetes, diabetes education has been standard care. However, it is clear that the provision of knowledge alone does not change behaviour and care goals need to be achievable (Snow et al, 2014). Evidence related to effective education programmes focusing on reducing wound complications for people with diabetes emphasises the importance for control of blood glucose levels, regular screening, immediate self-reporting of any wound changes to health professionals and the use of a simple daily self-care routine. Also, education that entails one-on-one support from a healthcare professional trained in wound care practices and principles, in conjunction with an individualised program reflecting the recipient's specific and unique experiences is recommended as best practice (Rankin et al, 2012).

The available research regarding the superiority of which education approach to adopt, however, appears undecided and this may be potentially due to the heterogeneity and complexity of this patient population (Rygg et al, 2012). Encouragingly, recent evidence supports a significant positive impact in the ability to self-care through education, with improvements in outcomes compared to baseline post education as high as 84% (Kafaie et al, 2012). This finding reinforces the assertion made by some researchers for the need to focus efforts on enhancing self-management of wound care and potentially enhancing resilience, and adaptation rather than conveying information that may not be specific for self-management (Rosenthal, 2013; Haas et al, 2013). The IDF (L'Heveder and Nolan, 2013) recognised that diabetes self-management is critical in enabling individuals to learn the skills to be effective self-managers; however, they suggest that

these programmes should consider putting a greater emphasis on the promotion of positive behaviour change. This has an important focus, as knowledge about the intrinsic and extrinsic factors that increase self-management capabilities has the potential to guide appropriate self-management choices with regard to wound care with the back-drop of having the chronic condition of type 2 diabetes. As such, practitioners who care for people with type 2 diabetes who have a wound should ensure that self-management programmes include information and related activities for both diabetes and wound management and should be seen as one programme rather than two separate conditions.

### PSYCHOLOGICAL STRESS AND IMPAIRED HEALING

A range of clinical studies (Loo et al, 2007; Li et al, 2007; Schrementi et al, 2008) have identified that psychological stress is associated with impaired healing or dysregulation of a biomarker associated with wound healing across different clinical and experimental wounds in both cutaneous and mucosal tissue types. Intervention studies have provided evidence of an association between stress and healing (Holden-Lund, 1988), with stress being associated with slower or delayed wound healing in stressed older adults, adults with leg wounds, people with diabetes and surgical patients (Finestone et al, 2008). Cole-King and Harding (2001) examined the relationship between the healing of chronic wounds and anxiety and depression using the Hospital Anxiety and Depression Scale (HADS). Psychological and clinical wound assessments were conducted, with the investigators and participants blinded to the results of the other assessments. The relationship between the healing of chronic wounds and anxiety and depression was statistically significant: delayed healing was associated with a higher mean Hospital Anxiety and Depression Scale score ( $P=0.03$ ), demonstrating that symptoms of both depression and anxiety were associated with chronic wound healing. Walburn et al (2009) in their systematic review examining the effect of stress on wound healing concluded that the size of the relationship between stress and wound healing was estimated to be  $r=-0.42$ , classified as a medium effect size, suggesting that it may be of significance clinically as well as statistically. Resilience as resistance to the stress associated with both wound care and diabetes management

can offer a new way of working with service users/consumers/patients. That is, by being resilient, individuals have the power to adjust, resist stress and potentially thrive in the face of adversity (Edward 2005a; 2005b; 2013, 2014).

Wounds are common in people with diabetes due to impaired healing as part of the diabetic condition. With the ever-increasing priority of healthcare providers internationally to reduce length of hospitalisations, it can be assumed there will be an increase in the amount of people with diabetes and a wound who are cared for in the community. A large number of these people may present with a further complication of mental illness such as depression or anxiety. This therefore highlights the importance of effective support, development of resilient strategies, which enables the individual to manage their diabetes while allowing them to manage stress or anxiety that may be a secondary outcome of having a wound. It is recognised that psychosocial factors, such as anxiety and depression, are associated with delayed healing of wounds, and that when patients are actively involved in their care, outcomes are improved. Psychologically, stress may increase the likelihood of patients making cognitive errors or negative appraisals. A prolonged fight- or flight-response may result from these negative feelings that affect biological and behavioural responses,

which may have a negative effect on HbA1C (glycated haemoglobin). The notion of developing resilience is essential if patients with mental health problems and their families/carers are able to transcend the potential negative impacts of living with comorbid chronic conditions (mental illness, diabetes and a wound).

## SUMMARY

When people with wounds are able to accept the wound may impinge on normal day-to-day activities and develop strategies that manage this temporary change in lifestyle, their stress levels may be kept to a minimum. Complications of diabetes can impact on the normal trajectory of wound healing, for example, neuropathy and ischemia, which may lead to foot ulceration; unstable blood sugars; and an increased risk of infection that can lead to lower-limb amputation. The ability to develop resilient behaviours has the potential to facilitate a positive outcome for quality of life and subjective wellbeing. **WUK**

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