

Managing venous leg ulcers in the community: personal financial cost to sufferers

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Abstract

Venous leg ulcers are chronic wounds which often persist for many years, despite active treatment, and occur predominantly in people over the age of 60. In recent times, the care of these wounds has shifted from the acute care sector into the community, where wound care services and products aren't fully subsidised by the government. It is logical to assume that these costs are passed onto the client; however, within the Australian context there is currently no research concerning the magnitude of such costs, although anecdotal evidence suggests they can be substantial.

The purpose of this pilot study was to describe the average cost of managing a venous leg ulcer in the community. The study forms a pilot for future larger-scale studies within the Australian setting. A descriptive-correlational design was used to identify costs incurred by a convenience sample of 15 venous leg ulcer sufferers over a two-month period.

It was found that, on average, participants spent A\$114 a month managing their ulcer. Total management cost was found to be related to the size of the wound and the amount of exudate produced, while residential location influenced the type of expenses incurred.

The results indicate that expenses incurred by sufferers in the process of managing their venous leg ulcer are concerning, especially in light of the financial situation of many elderly people. Larger, more rigorous studies are recommended in order to further investigate these issues.

Introduction

Venous leg ulcers are chronic wounds, often persisting for many years, despite active treatment, with a high recurrence rate. They can be large in size and are renowned for producing copious amounts of exudate¹. They occur most frequently among the elderly population, with few cases seen in people less than 60 years of age².

The treatment and management of venous ulceration involves expensive products and services, including dressings, compression therapy, pharmacological therapy, debridement procedures, surgical intervention and home nursing services³⁻⁶. It has been acknowledged in literature from a

number of different countries that financial expenditure by national health departments on these treatment strategies is considerable. It was estimated that in the early 1990s, Australia's national health expenditure on leg ulcers was in the vicinity of A\$365–431 million². In 2002, this figure was found to have increased to A\$553–654 million⁷. As a result, the treatment and management of venous leg ulcers has moved away from the acute health sector and become community-based in recent years in an attempt by the healthcare system to improve cost-effectiveness⁸. In doing so, however, the costs, and responsibility for them, have in part been shifted from the government to the patient⁹.

The degree of personal financial expense incurred by venous leg ulcer sufferers has not previously been studied. One quality of life study found that venous leg ulcers impacted negatively on sufferers' financial situations¹⁰, while a small number of studies regarding other chronic illnesses found personal expense to be high^{11,12}. This, along with anecdotal evidence, suggested that personal expense associated with treating and managing venous leg ulcers may be considerable, especially considering the limited income of the majority of the affected population.

This paper outlines a study undertaken to address the above deficit, in particular to describe the average personal financial cost incurred by sufferers of chronic venous leg ulcers managing their wound in the community.

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Method

The study was conducted using a descriptive-correlational framework. Given the paucity of research in the area, the study was completed as a pilot with the intention of informing and directing larger studies in the future. A paper-based logbook was designed by the researchers for the study. Each logbook contained four sections:

1. Participant information.
2. Initial self wound assessment.
3. Self wound assessment throughout the study.
4. Log sheets for cost recording.

Simple tick box questionnaires were designed for sections one, two and three, while a structured log was developed for section four. Participants were encouraged to record any expenditure associated with their wound including, but not limited to: dressings; medications; ointments and lotions; professional fees and transport costs in this section.

Recruitment was carried out via newspaper advertisements placed in one metropolitan and one regional newspaper. Interested people contacted the researchers via phone or email and a package with the materials for the study was forwarded to their nominated address. Signed consent forms were sent back to the researchers immediately, while the logbooks were maintained for a two-month period and then returned via mail.

Inclusion criteria for the study required participants to:

1. have a chronic leg ulcer (six weeks or older) with venous aetiology or current reoccurrence of a previous ulcer (determined from information provided in the wound assessment section of the logbook)
2. have an adequate level of cognitive functioning (indicated by the ability to carry out the recruitment instructions)
3. be able to read and write English (the financial status of the study did not allow a translator to be employed).

Data was coded and entered into appropriate computer software programs for management and analysis. Basic descriptive statistics including frequencies, measures of central tendency and ranges were used to summarise the data and tests of correlation were performed between those variables of interest.

Results

Demographic and general findings

Fourteen people returned logbooks that met the inclusion criteria and were correctly maintained. The average age of participants was 73.4 years, with 57% being female and 43% male. Participants that resided in metropolitan areas made up 57% of the sample, with the remaining 43% from regional or rural areas.

The most common healthcare professional involved in the treatment and management of participants' leg ulcers was a general practitioner (GP) as indicated by 86% of the sample, followed by district nurses and wound specialists (43% respectively). Participants were able to nominate more than one healthcare professional as being involved in managing their wound. Home was by far the most common location used by participants to treat their ulcer, with only one participant indicating that treatment did not occur within their home.

Wound characteristics

Half of the participants' wounds had reoccurred from a previous episode of ulceration on the same area of the lower limb. The other half were suffering an ulcer for the first time or had an ulcer on a different area of the lower limb to previous episodes of ulceration.

The age of the wound varied markedly between participants, with a range of two months to 16 years. Wound healing was demonstrated over the period of the study by a mean reduction of 43% in wound area. Three wounds healed completely during the course of the study.

The level of exudate produced by the wounds was high, with 29% of participants indicating that it was "not contained by the dressing" and a further 64% indicating that it "stained the dressing". More than half of the participants indicated that their ulcer required daily or more frequent dressing changes.

Cost findings

There was a large variation in the total cost incurred by participants in treating and managing their ulcer, with a range of A\$57 to A\$751 spent over the two-month project period. The mean expenditure was A\$228, which correlates to a mean monthly expenditure of A\$114 and yearly expenditure of A\$1368.

The costs recorded by participants in the logbook were placed into one of six categories (Figure 1), with dressings clearly responsible for the majority of the expense incurred. It is

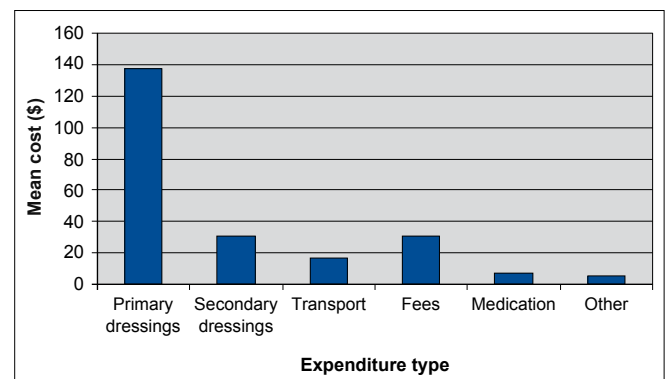


Figure 1: Costs by expenditure type.

likely, however, that transport costs are under-represented in this data, as several participants used private vehicles and were unable to estimate the associated cost.

Residing in either a metropolitan or regional area had little effect on the total cost of ulcer treatment and management. There was, however, some differences between the types of costs incurred (Figure 2).

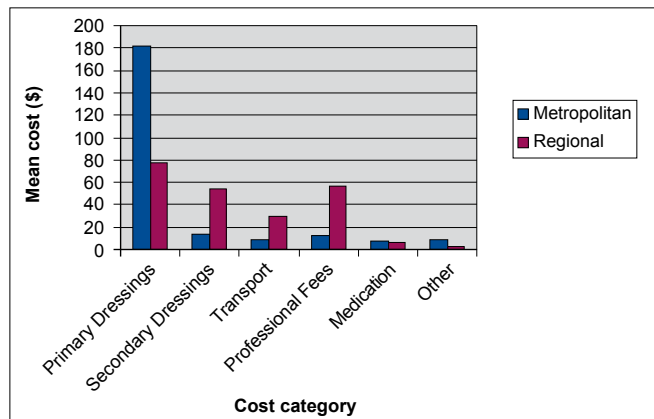


Figure 2: Comparison of metropolitan and regional expenditure.

Wound characteristics and cost

Although the sample size was small, there appears to be an association between wound size and total cost. The correlation coefficient for the relevant data was calculated at 0.37, indicating a moderate positive relationship. An association between the amount of exudate a wound produced and the cost of dressings was also identified. The mean cost of dressings for those wounds which had exudate "not contained by the dressing" was much higher (A\$340) than for those which had exudate that "stained the dressing" (A\$86). There was no indication of an association between the age of the wound and total cost in the two-month period or place of dressing purchase and cost of dressings.

Discussion

Although the sample size in this study was small, the gender ratio was similar to that found in a previous Australian leg ulcer study¹³. The average age of participants (73.4 years) is indicative of trends between advancing age and prevalence identified in previous studies^{2,13}. It also falls among measures of central tendency of age in the limited number of studies involving venous leg ulcer patients available¹⁴⁻¹⁷. The similarity of gender ratios and participant age indicate that the sample obtained was relatively representative of the demographic characteristics of venous leg ulcer sufferers in the wider community.

Half of the participants in the study had a wound which had reoccurred from a previous episode of ulceration. Given

reoccurrence rates have been shown to be between 60 and 76%^{2,13}, this finding is not unusual. The range of wound ages in the study was diverse, but this is also consistent with findings of other studies. While some participants had had their ulcer for only two months, others had suffered from the same, unhealed ulcer for 16 years, with the mean ulcer age being 26.8 months. This falls between the mean age of ulcers included in other studies (34.8 months¹⁰ and 12 months¹⁵) and along with gender and age of participants indicates that, despite being quite small, the sample was relatively representative.

The findings of this study support the notion raised by Thorne⁸ and Graham, Harrison, Moffat and Franks¹⁸ that the treatment and management of leg ulcers has shifted from the acute care sector into the community. All but one of the participants indicated that treatment took place in their home. They also concur with Graham, Harrison, Moffat and Franks'¹⁸ findings that community nurses and GPs have become the primary professionals involved in the care of venous leg ulcers. Limited literature published on this topic is divided as to whether this type of care delivery is successful in terms of healing ulcers and there have been no randomised, controlled studies to examine how the community nurse or GP combination compares to specialised leg ulcer clinics and clinicians¹⁹. It was interesting to note that, although 43% of participants indicated that a wound specialist was involved in the management of their ulcer, there were no consultations with one recorded by any of the participants over the course of the study. It is possible such consultations resulted in no expense to participants and hence were omitted from logbook records, although Podmore²⁰ indicated that leg ulcer patients are not referred for specialist opinions often enough. This has implications for the health of the wound if the GP or district nurse delivering the majority of the care is not properly educated about identifying changes in the wound and the appropriate actions to take in response to these changes.

McGuckin, Brooks and Cherry¹⁹ found that district nurses who were both trained and experienced in the treatment of venous leg ulcers and worked in partnership with GPs, successfully healed a large number of wounds within clinically acceptable time frames. It is unknown, however, how knowledgeable the majority of district nurses and GPs are regarding best practice for wound healing. Research by Kjaer, Sorensen, Karlsmark, Mainz and Gottrup¹⁵ has indicated that healing rates from specialist, multidisciplinary wound clinics surpass those achieved by other organisational methods.

The financial expenditure by participants in this study in the course of treatment and management of their wound was considerable. Despite government subsidies for professional services, materials and pharmaceuticals, it appears that individuals who suffer from these wounds are still encumbered with an array of out of pocket expenses. The

participants in this study spent a mean monthly total of A\$114 on the treatment and management of their ulcer, indicating a personal cost of A\$1368 per annum. This is the first time that a specific monetary measure of personal expenditure has been determined for the treatment and management of venous leg ulcers.

The annual expenditure of A\$1368 found in this study is significantly higher than estimated annual expenses by participants in the 1994 American study by Phillips, Stanton, Provan and Lew¹⁰, the only piece of published literature acknowledging personal expense as a result of venous leg ulceration in any detail. While approximately 30% of participants estimated their expenses to be between \$101 and \$1000 per annum, only 8% estimated this figure was over \$1000. This is in stark contrast to the majority of participants in this study, who recorded an average expense totalling well over \$1000 for an extrapolated yearly period. Potential explanations for the grossly larger costs incurred by participants in this study include sample bias, inflation, development and use of different products and shift of care provision from the acute to community setting between 1994 and 2006.

Whatever the reason for the difference in personal expenditure found by the two studies, the concept that

personal expenditure resulting from ulcer care is a burden on the financial situation of sufferers is a common theme emerging from both. Participants in the Phillips, Stanton, Provan and Lew¹⁰ study were asked directly if their leg ulcer impacted negatively on their financial situation, with 76% indicating that it did. While participants in this project were not asked to give such an opinion, the results considered in light of the characteristics of the population most commonly affected by venous ulceration certainly suggest that a large proportion may be financially disadvantaged.

Seventy-six per cent of people aged over 60 who have a disability rely on a government pension as their main source of income²¹. Given that the average age of participants in this study was 73.4 years, all had a venous leg ulcer (considered a chronic condition given the proven lengthy periods of ulceration) and leg ulcers occur most often in people from lower social classes²², it can be assumed that the majority of participants in this study are financially supported by government pensions.

Considering the average weekly income from aged pensions is A\$206²¹ and an average monthly expenditure of A\$114 was found in this study, it is likely that approximately 14% (A\$28) of participants' total weekly income is being spent on the treatment and management of their leg ulcer. Many of the



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participants in this study have been exposed to these financial costs for lengthy periods of time and on multiple occasions, as shown by the age of their wounds and the percentage of which are reoccurrences. This highlights the importance of financial considerations as part of a comprehensive treatment plan for people suffering from venous ulceration.

The breakdown of costs into areas of expenditure showed that the main sources of expense for participants were dressings (both primary and secondary), professional fees and transport. This is identical to the main sources of expense identified by participants in Phillips, Stanton, Provan and Lew's¹⁰ study, indicating that although the magnitude of expenses has increased over time, the primary sources of this expense remain the same. The combined cost of primary and secondary dressings formed the bulk of expenses for participants and represented 74% of total expenditure.

While living in a metropolitan or regional area had little influence on the total cost of wound treatment and management, it did have significant implications for the type of expenses incurred. There seems to be no plausible reason for the higher expenditure on primary dressings among metropolitan participants, other than that the small sample produced unrepresentative results.

The higher costs incurred by regional participants as a result of transport and professional fees, however, was expected and a reflection of many similar issues which have been reported within the literature. Those which are specifically relevant to the results found in this study concern distances needing to be travelled by regional residents in order to receive healthcare²³ and the lower rate of bulk billing for these services²⁴.

Three characteristics which differ from wound to wound (size, age and amount of exudate) were examined in this study to see if they influenced the cost of treatment and management. While results indicated that there was some relationship between cost and wound size and amount of exudate, cost did not appear to be associated with the age of the wound.

Dressing products often come in a number of different sizes and wounds which cover a large area will require either a larger sized dressing or a number of smaller dressings to protect the entire wound area. As a result, people who have large wounds will tend to have higher dressing expenses and, hence, higher overall costs. Larger wounds may also have more complications and side effects than smaller wounds and indicate more serious underlying pathological processes, which could all increase the amount of healthcare required and increase expenses. Wounds with heavy exudate may require more frequent dressing changes and, hence, result in greater cost.

Although a number of characteristics of both the participants and their wounds were found to be similar to previously studied venous leg ulcer populations, the sample size was small and, hence, places limitations on the results obtained from the study. The internal validity of the study and, hence, the accuracy of inferences drawn from the data were affected by both the sampling technique and the tool utilised for cost recordings. This was, however, intentionally designed to be a pilot study and has successfully produced some preliminary findings in a previously neglected field of research. It would be of benefit for this study to be replicated with a larger, representative sample so that more confident interpretations of the data could be made.

In the process of investigating the personal cost of treating and managing a venous leg ulcer, two other issues that warrant further investigation came to light.

While it is widely acknowledged that these wounds are notorious for producing a large amount of exudate, no previous attempts to quantify the extent of production have been made in a research study looking solely at this issue. Scales to measure exudate, however, have been published as part of wound assessment tools²⁵. The majority of the wounds in this study produced some degree of exudate, with a significant proportion of participants reporting large volumes that were not contained by the dressing. Quantifying the amount of exudate would be a useful starting point in determining whether this is a case of poor management or whether the development of more absorbent dressings is required. In doing so, sufferers' quality of life could be improved as well as financial costs reduced.

With the care of venous leg ulcers now predominantly occurring within the community, the knowledge of GPs and district nurses regarding successful treatment and management of such wounds is an important issue on which there is little consensus among published literature. Examining the level of skills and knowledge and the need for relevant education among community health professionals could result in significant improvements in both the healing rates of ulcers and the cost-effectiveness of treatment.

Until further, more comprehensive research has been undertaken regarding the issue of personal financial cost to sufferers, it can not be claimed that personal financial burden is a significant issue in the treatment and management of venous leg ulcers. This study, however, has acknowledged that for some sufferers, the expenses incurred are substantial. As a result, nursing and medical professionals should be aware that cost could potentially be an issue for their clients and incorporate financial considerations in their assessment and treatment and management plans if necessary. In addition, recognising and utilising current evidence-based treatments will also assist in achieving good healing rates and minimise the period of time in which sufferers incur expenses.

References

- Bland M. Coping with leg ulcers. Nurs NZ 1996; 2:13-14.
- Baker S & Stacey M. Epidemiology of chronic leg ulcers in Australia. Aust NZ J Surg 1994; 64:258-261.
- Palfreyman S, Lochiel R & Michaels J. A systematic review of compression therapy for venous leg ulcers. Vasc Med 1998; 3:301-31.
- Armstrong S, Duncan V & Gibson B. Venous leg ulcers part 4: wound care. Prof Nurse 1998; 13:798-802.
- Biddix J. Optimal management of lower extremity ulcers: a PPS case study. Home Healthc Nurse 2003; 21:745-750.
- Williams C. Treatment of venous leg ulcers: 1. Br J Nurs 1996; 5:210-215.
- Santamaria N, Austin D & Clayton L. A multi-site clinical evaluation trial of the Alfred/Medseed Wound Imaging System prototype. Prim Intent 2002; 10:120-125.
- Thorne E. Community clinics versus home management for leg ulcer treatment. Cochrane Database Syst Rev 1996; 1.
- Duke M & Street A. The impetus for the development of Hospital in the Home (HITH) programs: a literature review. Contemp Nurse 2003; 14:227-239.
- Phillips T, Stanton B, Provan A & Lew R. A study of the impact of leg ulcers on quality of life: financial, social and psychologic implications. J Am Acad Dermatol 1994; 31:49-53.
- Su J, Kemp A, Varigos G & Nolan T. Atopic eczema: its impact on the family and financial cost. Arch Dis Child 1997; 76:159-162.
- White M. Spina bifida: the personal and financial cost of incontinence. Br J Nurs 1993; 2:1123-1130.
- Baker S, Stacey M, Jopp-McKay A, Hoskin S & Thompson P. Epidemiology of chronic venous ulcers. Br J Surg 1991; 78:864-867.
- Prince S & Dodds S. Use of ulcer size and initial responses to treatment to predict the healing time of leg ulcers. J Wound Care 2006; 15:299-303.
- Kjaer M, Sorensen L, Karlsmark T, Mainz J & Gottrup F. Evaluation of the quality of venous leg ulcer care given in a multidisciplinary specialist centre. J Wound Care 2005; 14:145-150.
- Hareendran A, Bradbury B, Budd J, Geroulakos G, Hobbs R, Kenkre J & Symonds T. Measuring the impact of venous leg ulcers on quality of life. J Wound Care 2005; 14:53-57.
- Chase S, Whittemore R, Crosby N, Freney D, Howes P & Phillips T. Living with chronic venous leg ulcers: a descriptive study of knowledge and functional health status. J Community Health Nurs 2000; 17:1-13.
- Graham I, Harrison M, Moffat C & Franks P. Leg ulcer care: nursing attitudes and knowledge. Can Nurse 2001; 97:19-30.
- McGuckin M, Brooks J & Cherry G. Venous leg ulcers: the role of the GP and district nurse. Nurs Stand 2000; 14:46-48.
- Podmore J. Leg ulcers: weighing up the evidence. Nurs Stand 1994; 8:25-27.
- Australian Bureau of Statistics. Disability, aging and carers, Australia: summary of findings. Retrieved 2 October 2005 from: <http://www.abs.gov.au/ausstats>
- Moffatt C & Franks P. A prerequisite underlining the treatment programme: risk factors associated with venous disease. Prof Nurse 1994; 9:637-642.
- FitzGerald M, Pearson A & McCutcheon H. Impact of rural living on the experience of chronic illness. Aust J Rural Health 2001; 9:235-240.
- Hopkins S & Speed N. The decline in 'free' general practitioner care in Australia: reasons and repercussions. Health Policy 2005; 73:316-329.
- Falanga V. Classifications for wound bed preparation and stimulation of chronic wounds. Wound Rep Reg 2000; 8:347-352.



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