

Prevalence of Chronic Wounds in Different Modalities of Care in Germany



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Wound survey from Germany has analysed the prevalence of chronic wounds, using data from different German health and care settings.

ABSTRACT

Background

Data regarding the prevalence of chronic wounds in Germany indicate varying numbers, from 1 to 4 million people. The survey presented here analysed the prevalence of chronic wounds in Germany, using data from different German health and care settings.

Patients and Methods

This survey is a point prevalence study of chronic wound patients from the city of Duisburg ($n = 486,816$ inhabitants, eight hospitals, 52 nursing homes, and 71 outpatient care services) and the rural district of Altenkirchen ($n = 129,166$ inhabitants, two hospitals, 22 nursing homes, and 19 outpatient care services). Importantly, we took into account the treatment structures and services of the German healthcare sector. All hospitals, nursing homes, and outpatient care services were requested to take part in the survey. Return rates varied between hospitals, nursing homes, and outpatient care services, and ranged from 51% to 69%. Single patients were not contacted.

Results

In Duisburg, pressure ulcers were most frequent in nursing homes, with 4.6% of all residents affected; leg ulcers were most frequent in hospitals, with 3.8% of patients affected; and foot ulcers were most frequent in patients who were cared for by outpatient services, making up 2.0% of this population. Considering the total population of Duisburg,

the point prevalence of pressure ulcers was 0.09%, that of leg ulcers was 0.09%, and that of foot ulcers was 0.06%. In Altenkirchen, all three ulcer types were most frequent in nursing homes, with 6.9%, 5.2%, and 4.9% of all residents presenting with pressure ulcers, leg ulcers, or foot ulcers, respectively. Considering the total population of Altenkirchen, the point prevalence of pressure ulcers was 0.08%, that of leg ulcers was 0.09%, and that of foot ulcers was 0.07%.

Conclusion

This analysis shows that around 0.24% of the population in Germany is affected by chronic wounds. The rates of pressure ulcers, leg ulcers, and foot ulcers varied only between 0.07 and 0.09%.

Recommendation to practice

Acute surgical wounds in hospitals are much more frequent than chronic wounds.

Although pressure ulcers are more frequent in nursing homes, there is no specific pattern of different chronic wounds that differentiates hospitals, nursing homes, and outpatient care services.

Our analysis of the different health and care settings in Germany likely underestimates the true prevalence of chronic wounds, because patients treated by their doctors on an outpatient basis were not included.

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Conflicts of interest:
None

INTRODUCTION

The care and management of patients with chronic wounds, and their widespread effects challenge both the patient and the practitioner. Further complicating this situation is the paucity of evidence-based treatment strategies for chronic wound care. It is thought that in Germany, more than 4.5 million people are treated for chronic wounds per year, with resulting costs to the public health system of up to five billion Euros.^{1,2,3} More recent data, however, reported much lower numbers. Secondary analysis of German statutory health insurance data concluded that in 2012, 1.04% (95% CI 1.03–1.05) of insured patients had a wound diagnosis, including 0.70% with leg ulcers and 0.27% with diabetic ulcers. Extrapolated to the German population, this reflects a prevalence of 786,407 and an incidence of 196,602 chronic wounds.⁴ Large-scale studies in the Rhineland region of Germany have revealed a current venous ulcer prevalence of about 0.01%, which would imply that about 50,000 to 80,000 persons in Germany suffer from this condition.⁵ Studies of diabetic foot ulcers in various countries have yielded prevalence figures ranging from 2% to 10% of the diabetic population, with an annual incidence of 2% to 6%.⁶

To overcome this dilemma of discrepant figures, improve evidence-based wound care, and spread the understanding of the challenges related to wound care research, the European Wound Management Association (EWMA) formed the “Patient Outcome Group” in 2008.^{7,8,9} As part of this group’s initiative, the EWMA Wound Surveys aim to uncover the resource costs of wound care in different European countries. A survey from Denmark reported the number of pressure ulcers, leg ulcers, and diabetic foot ulcers in inpatients as 3.3%, 1.7%, and 1.6%, respectively. In the municipalities, the authors reported a prevalence of 0.7/1000 pressure ulcers, 0.5/1000 leg ulcers, and 0.3/1000 diabetic foot ulcers).

Thus, this survey aimed to generate data about the prevalence of chronic wounds in Germany. As the German healthcare system is divided into different health and care settings, we analysed the prevalence of chronic wounds in each setting.

METHOD

We performed a point prevalence study, which took into account the treatment structures and services of the German healthcare sector. The city of Duisburg and the rural district of Altenkirchen participated, requesting that their hospitals, nursing homes, and outpatient care services take part in the survey. Duisburg is a large city in the industrial Ruhr area in Western Germany. The number of inhabitants is given as $n = 486,816$. The city counts

eight hospitals, 52 nursing homes, and 71 outpatient care services. Altenkirchen is a smaller rural district in Western Germany covering 7 smaller villages. Together, the number of inhabitants of this district is given as $n = 129,166$. The district counts two hospitals, 22 nursing homes, and 19 outpatient care services.

Data collection

A point prevalence survey was carried out during a 2-week period in February 2015 in Duisburg and in June 2015 in Altenkirchen. The questionnaires and a motivation letter, which explained the necessity of the survey, were sent out by the head of the health department of Duisburg, and by the Chief of the district, called the “Landrat”, in Altenkirchen. We involved these political institutions to increase the regional acceptance of the survey.

The letters were sent to the nursing officers of all hospitals and nursing homes. They were asked to hand out the questionnaires to the responsible ward nurses and instruct them to complete it with their team on one specific day. In addition, all outpatient care services were asked to participate. The questionnaires were sent to the chiefs of the outpatient care services, and they were asked to complete it with their team on one specific day.

All questionnaires were returned in an enclosed stamped envelope to the head of the health department of Duisburg and the Chief of the district of Altenkirchen. Return rates varied between hospitals, nursing homes, and outpatient care services, ranging from 51% to 69%. Single patients were not contacted. Thus, ethical approval was not needed.

RESULTS

Point prevalence of wounds

In Duisburg, 50.6% of all hospitalised patients presented with surgical wounds. As expected, the rates of surgical wounds were much lower in other settings, and reached 1.8% in nursing homes and 2.5% in patients who were cared for by outpatient services. Pressure ulcers were most frequent in nursing homes, occurring in 4.6% of all residents; leg ulcers were most frequent in hospitals, presenting in 3.8% of patients; and foot ulcers were most frequent in patients who were cared for by outpatient services, occurring in 2.0% of this group. Considering the total population of Duisburg, the point prevalence of pressure ulcers was 0.09%, that of leg ulcers was 0.09%, and that of foot ulcers was 0.06% (Table 1), for a total overall prevalence of 0.24%.

In Altenkirchen, 62.0% of all hospitalised patients presented with surgical wounds. In nursing homes, the total was 2.6%, and in patients who were cared for by outpatient

WOUND TYPE (n / %)	HOSPITAL	NURSING HOME	OUTPATIENT CARE SERVICES	TOTAL
Duisburg	n = 4,200	n = 4,388	n = 7,846	n = 468,816
Surgical	2123 (50.6)	79 (1.8)	197 (2.5)	2399 (0.49)
Pressure ulcer	112 (2.7)	200 (4.6)	129 (1.6)	441 (0.09)
Leg ulcer	162 (3.8)	46 (1.0)	224 (2.9)	432 (0.09)
Foot ulcer	54 (1.3)	68 (1.6)	153 (2.0)	275 (0.06)
Others	65 (1.6)	117 (2.7)	115 (1.5)	297 (0.06)
Altenkirchen	n = 411	n = 839	n = 1607	n = 129,166
Surgical	255 (62.0)	22 (2.6)	76 (4.6)	353 (0.28)
Pressure ulcer	13 (3.3)	58 (6.9)	33 (2.0)	104 (0.08)
Leg ulcer	10 (2.5)	44 (5.2)	58 (3.5)	112 (0.09)
Foot ulcer	12 (2.9)	41 (4.9)	36 (2.2)	89 (0.07)
Others	15 (3.6)	22 (2.6)	51 (3.1)	88 (0.07)

Table 1: Point prevalence of surgical wounds and pressure ulcers, leg ulcers, and foot ulcers in the city of Duisburg and the district of Altenkirchen in Germany. Given are the absolute numbers (n) and the rates (%) of affected patients from all estimated patients in these settings and of the total population in these areas.

services, it was 4.6%. Pressure ulcers, leg ulcers, and foot ulcers were most frequent in nursing homes, with 6.9%, 5.2%, and 4.9% of all residents presenting with each, respectively. Considering the total population of Altenkirchen, the point prevalence of pressure ulcers was 0.08%, that of leg ulcers was 0.09%, and that of foot ulcers was 0.07% (Table 1), for a total overall prevalence of 0.24%. Finally, when we extrapolated to the German population 18 years and older (n = 68.85 million in 2015), our analysis suggests that only 165,240 individuals would be affected by pressure, leg, and foot ulcers.

DISCUSSION

Our analysis shows that around 0.24% of the German population is affected by chronic wounds. Additionally, we found that the prevalence rates of pressure ulcers, leg ulcers, and foot ulcers are rather similar.

Acute wounds predominantly occur in hospitalised patients. According to our analysis, 50.6% to 62.0% of inpatients have surgical or traumatic wounds. The EWMA survey in Denmark reported that 33% of all inpatients had a wound. The majority of these were surgical/trauma wounds (25%).⁸ Another wound survey from the UK, carried out over a one-week period in March 2007, covering three hospitals in two acute trusts, district nurses, nursing homes, and residential homes, reported a point prevalence of wounds in inpatients of 30.7%. The majority (78.8%) of these patients had surgical or traumatic wounds.⁹ In Germany, 19.75 million patients were hospitalised in 2015. Of these cases, 55.36 million procedures

were documented, of which 29.7% (n = 16.42 million) were surgical procedures. Thus the rates in our analysis are relatively high and may be influenced by the specifications of the hospitals.

The number of chronic wounds was lower than expected, but is comparable to those reported in other analyses. A secondary analysis of German statutory health insurance data concluded that in 2012, 1.04% (95% CI 1.03–1.05) of insured patients had a wound diagnosis.⁴ However, the standardised prevalence rate in 2012 was estimated to be 0.4%, representing 330,000 treated persons.² The difference in our analysis might be due to the fact that we only detected patients with chronic wounds who were hospitalised, in nursing homes, or cared for by outpatient services. Patients outside these settings, whose wounds were treated by a doctor were therefore not included. The EWMA Wound Surveys from Denmark report the number of chronic wounds (pressure ulcers, leg ulcers, and diabetic foot ulcers) in municipalities as 0.15%.⁸ The UK wound survey from March 2007 reported that the prevalence of patients with a wound was 0.36%.⁹ The figure from the UK is therefore more comparable to that from the German population reported here (0.24%), as the authors of that study tried to calculate the rates of chronic wounds in all settings. In Denmark, the rate of ulcers in hospitals was 3.3% for pressure ulcers, 1.7% for leg ulcers, and 1.6% for diabetic foot ulcers.⁸ The in-hospital rates in the UK were 3.6% for pressure ulcers, and 2.7% for leg and foot

ulcers together.⁹ Importantly, these figures were similar to our findings in the German population.

The unique feature of our analysis is the inclusion of chronic wound rates in the three different health and care settings that characterise the German healthcare system. We are not aware of any other study that has followed such a concept. All studies listed in Table 2 focused on only one of these settings. We found that there were more patients with chronic wounds in hospitals, nursing homes, and outpatient care settings in Altenkirchen compared to Duisburg. One explanation for this observation might be an increased concentration of these patients living in Altenkirchen, which has fewer hospital beds, nursing homes, and patients cared for by outpatient care services than does Duisburg, as a percentage of total inhabitants (22.1/1000 vs. 35.1/1000 inhabitants). We also found that pressure ulcers in nursing homes are twice as frequent as in hospitals or in patients cared for at home, while this is not true for leg ulcers or foot ulcers.

Limitations

Firstly, our survey was not based on individual investigation of patients. We only received information from the responsible person in hospitals, nursing homes, and outpatient settings. Thus, we cannot provide any information regarding the accuracy of the reporting.

Secondly, return rates ranged from 51% to 69%, and we extrapolated to all institutions of the same settings. Higher rates would increase the validity of our results, but there is no reason to assume that those who did not return the questionnaire have higher or lower rates of chronic wounds.

Finally, our survey included only two regions of Germany, one that represented a large city in the industrial Ruhr area, and one smaller rural district. Although both regions are completely different and represent typical regions in Germany, both are in Western Germany and may not be representative of the total German population.

CONCLUSION

Today, point prevalence of chronic wounds in Germany seems to be much lower than in most previously published reports. A population-based analysis representing the entire country is therefore necessary to provide exact data and judge the effectiveness of future German healthcare strategies for chronic wound treatment and prevention.

Acknowledgement

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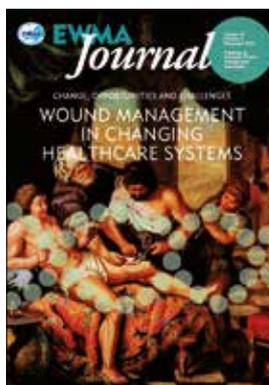
AUTHOR / YEAR	PREVALENCE	SETTING	REMARKS
Heyer et al. / 2016	1.04% / 0.7% / 0.27%	insurance data	chronic wounds / leg ulcer / foot ulcer
Klingelhöfer-Noe et al. / 2015	3.9% / 2.3%	nursing home / outpatient care service	pressure ulcer (I-IV)
Eberlein-Gonska et al. / 2013	1.21%	hospital	pressure ulcer
Lahmann et al. / 2012	11%	hospital	pressure ulcer (I-IV)
Kottner et al. / 2010	3.9%	nursing home	pressure ulcer
Wilborn et al. / 2010	4.7%	nursing home	pressure ulcer (II-IV)
Lahmann et al. / 2010	12.5% – 5% 6.6% – 3.5%	nursing home	pressure ulcer (I-IV) 2002-2008 pressure ulcer (II-IV) 2002-2008
Kottner et al. / 2009	3.9% / 7.9%	nursing home / hospital	pressure ulcer (I-IV)
Hoppe et al. / 2008	7.3% / 12.7%	nursing home / hospital	pressure ulcer (I-IV)
Kottner et al. / 2008	13.9% – 7.3%	hospital	pressure ulcer (I-IV) 2001-2007
Sämman et al. / 2008	3.6% / 2.8%		diabetic ulcer type 1 / 2
Stausberg et al. / 2005	5.4%	hospital	pressure ulcer (I-IV)
Stausberg et al. / 2005	5.3%	hospital	pressure ulcer (I-IV)
Laible et al. / 2000	2.68%	outpatient care service	leg ulcer

Table 2: List of studies that published prevalence data of chronic wounds or specific ulcer types in Germany.

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