



Dry skin in nursing care receivers: A multi-centre cross-sectional prevalence study in hospitals and nursing homes



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ABSTRACT

Background: Maintaining and improving skin health of patients and long-term care receivers is a widely agreed upon goal in health and nursing care. Care dependent and aged persons have a high predisposition to develop dry skin conditions.

Objectives: The aim of this study was to estimate the prevalence and severity of skin dryness in hospitals and nursing homes and to identify person- and health-related variables associated with this skin condition.

Design: The study was part of a bigger annual multicentre descriptive cross-sectional prevalence study of health problems.

Settings/participants: Fourteen nursing homes and six hospitals in Germany participated in this study in 2014. A total of 1710 subjects ($n = 1091$ long-term care residents and $n = 619$ in-patients) were included.

Methods: Skin assessments were conducted and skin dryness was measured using the Overall Dry Skin Score. Mobility was measured using the respective item of the Care Dependency Scale. Demographic, functional and physiological parameters were compared between subjects with and without dry skin. A logistic regression model predicting skin dryness was created.

Results: The prevalence of skin dryness was 48.8% (95% CI 46.5–51.2). Nursing home residents were most often affected (52.6%; 95% CI 49.6–55.6) compared to in-patients (42.2%; 95% CI 38.3–46.1). The skin of feet and legs were most often affected by skin dryness (42.9%) compared to other skin areas. Being older (OR 1.01; 95% CI 1.01–1.02), having pruritus (OR 14.21; 95% CI 8.00–22.95), oncological (OR 1.95; 95% CI 1.30–2.91), musculoskeletal diseases (OR 1.31; 95% CI 1.04–1.64), being skin care independent (OR 0.48; 95% CI 0.32–0.70) were the strongest covariates for the presence of dry skin in the multivariate model.

Conclusions: Based on a large sample results indicate that approximately every second nursing home resident and hospital in-patient are affected by dry skin. Severe forms occur more often in hospital in-patients compared to nursing home residents. Skin care interventions to tackle dry skin are recommended particularly for hospital patients and nursing home residents who are affected by pruritus or oncological diseases, who are in need of washing/bathing assistance, and who have musculoskeletal diseases.

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What is already known about the topic?

- Dry skin is the most prevalent skin condition in aged individuals.
- Chronic diseases like diabetes mellitus negatively affect skin structure and function.
- Emollients or moisturizers are effective in preventing and treating dry skin.

What this paper adds

- Residents in nursing homes are more often affected by dry skin than hospital patients.
- More severe forms of skin dryness occur in hospital patients compared to nursing home residents.
- Age, pruritus, skin care dependency, musculoskeletal and/or oncological diseases and multi-medication are the strongest independent covariates associated with skin dryness in institutional care.

1. Introduction

The maintenance and improvement of skin health and integrity of patients and long-term care receivers is a widely agreed upon goal in all health care settings worldwide (Cowdell, 2010; Guenther et al., 2012; Lichterfeld et al., 2015). The skin of immobile, bedridden and/or aged persons has an increased predisposition to develop adverse skin conditions like pressure ulcers, skin tears, intertrigo or skin dryness (Kilic et al., 2008; Mengeaud et al., 2012; Siragusa et al., 1999). In addition, geriatric and care dependent patients suffer from various chronic diseases like diabetes mellitus that negatively affect the skin structure and function and accompanying multi-medications add on these detrimental cutaneous effects (Chang et al., 2013; Endo et al., 2013; White-Chu and Reddy, 2011).

The phenomenon of dry skin (xerosis cutis) receives increasing attention in clinical research and practice (Guenther et al., 2012; Kottner et al., 2013a,b; Paul et al., 2011). Early works from a nursing science perspective date back to the 1980s (Brown et al., 1982; Frantz et al., 1986) and recently clinical trials (Kottner et al., 2015a,b; Schoonhoven et al., 2015) as well as a Cochrane protocol for preparation of a systematic review have been conducted in this area (Cowdell et al., 2014; Kottner et al., 2013a,b).

Aged and/or care dependent persons often show signs of skin dryness characterized by scaling, roughness and redness accompanied with pruritus (Serup, 1995; Yalcin et al., 2006). This leads to excoriations with a high risk of infections and wounds which are often painful, require increased efforts to heal and result in a decrease of quality of life (Norman, 2003). Advanced age and immobility are regarded as risk factors for dry skin (Aisen et al., 1997; Cowdell, 2010). Thus these populations would benefit most of interventions like the regular use of emollients and moisturizers (Kottner et al., 2013a,b).

Available evidence suggests skin dryness as the most common skin condition in aged populations. Reported prevalence ranges from 30% to 85% (Kilic et al., 2008; Paul et al., 2011; Smith et al., 2002a,b). Paul et al. (2011)

investigated the prevalence of skin dryness in ambulant patients in general practitioner offices, but the results (e.g. skin dryness and diabetes (2.6%) and males with dry skin (37.4%) vs. females with dry skin (62.6%)) are not representative for institutional health care. Two studies by Smith et al. (2002a,b) and one study by Kilic et al. (2008) investigated nursing home residents in Australia, Taiwan and Turkey with sample sizes of 300–400 residents. Key findings of these investigations showed significant relationships between skin dryness, pruritus and being bedridden ($p < 0.05$) (Kilic et al., 2008; Smith et al., 2002a). Females were more often affected than males (Kilic et al., 2008; Smith et al., 2002b). In addition, the lower legs showed a higher prevalence of skin dryness compared to other body areas (Smith et al., 2002a,b).

Epidemiological figures of the prevalence of skin dryness in European institutional healthcare settings are rare. Furthermore, identifying evidence of person and health related characteristics would be helpful in targeting treatment interventions in persons at risk. Therefore, the aim of the current investigation was to estimate the prevalence and severity of skin dryness in hospitals and nursing homes. A further goal was to identify person and health-related variables most strongly associated with skin dryness in these settings.

2. Methods

2.1. Study design and setting

A multicentre descriptive cross-sectional prevalence study was conducted in German hospitals and nursing homes in April 2014. This study was a cooperation of the Clinical Research Center for Hair and Skin Science and the Nursing Science unit of the Charité-Universitätsmedizin Berlin. It was part of annual prevalence surveys of health problems among patients in hospitals and residents in nursing homes that are conducted since 2002. In brief, all hospitals and nursing homes across Germany were invited to participate. The design and procedures are based on the Dutch National Registration Project of Pressure Ulcers (Bours et al., 1999). A coordinator for every participating hospital or nursing home was trained by researchers. The coordinator then trained the ward nurses to perform the data collection. Detailed descriptions of the study design and methods are available elsewhere (Kottner et al., 2009a,b).

2.2. Participants

Patients and residents were considered eligible when they were at least 16 years old. Participants had to give their informed consent, either personally or by a legal representative. The ethics commission of the Medical Association of Berlin approved the prevalence study (Eth-837-262/00).

2.3. Variables

In the course of the prevalence study a broad range of demographic, functional and health variables were measured. These variables were clustered into different

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