Vol. 34 / No. 3 / December 2022
Sinta 2 (Decree No: 200/M/KPT/2020)
Online ISSN : 2549-4082 ; Print ISSN : 1978-4279
Available online at https://e-journal.unair.ac.id/BIKK

Berkala Ilmu Kesehatan Kulit dan Kelamin
Periodical of Dermatology and Venereology

Original Article

Knowledge Improvement of Xerosis Cutis through Health Education in the Elderly

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ABSTRACT

Background: Xerosis cutis presents in more than 50% of the elderly population and is currently the most common complaint related to a skin condition in the elderly population. However, many of them are still uninformed of this complaint. Education plays an important role in the management of xerosis cutis, such as how to identify and avoid triggering factors and how to break the itch-scratch cycle. **Purpose:** This study aims to evaluate the level of knowledge on xerosis cutis in the elderly population after receiving health education. **Methods:** This observational study involved 71 subjects who met the inclusion criteria of being elderly and were willing to participate in this study. The data were collected using questionnaires. The level of knowledge was assessed before and after the health education around xerosis cutis. **Result:** Eleven (15.49%) male and 60 (84.51%) female subjects participated in this study. There was a significant difference mean scores between the pre-test and post-test after health education (p= <0.001). The means of total scores of the pre-test and post-test were 11.72 ± 1.475 and 12.58 ± 1.662. The questionnaire consisted of chapters regarding skin changes in the elderly, risk factors for xerosis cutis, and management of xerosis cutis. A significant difference in score between the pre-test and post-test was found in all the chapters (p=0.046, p=0.002, and p=0.006). **Conclusion:** Following health education, there was an improvement in the elderly's level of knowledge on xerosis cutis.

Keywords: *xerosis cutis, sensitive skin, elderly, health education, human and health.*

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| Article info |
Submited: 11-09-2022, Accepted: 28-10-2022, Published: 30-11-2022

BACKGROUND

Xerosis cutis is a dry skin condition caused by multifactorial factors, such as loss or reduction of moisture in the stratum corneum due to a reduction in the activity of sebaceous and sweat glands. Impaired filaggrin production, altered lipid composition, and intrinsic changes in keratinization also contribute to the development of xerosis cutis. Dry skin condition are also accompanied by a loss of skin barrier function. The clinical manifestations are extensive dry, rough skin with flaking scale, sometimes accompanied by an itchy or burning sensation, and being more sensitive to irritant agents. Xerosis cutis may also occur secondary to systemic diseases or other comorbidities.[1,2]

A cross-sectional epidemiological study conducted in France showed xerosis cutis was present in 55.6% of patients aged 65 or older, while moderate or severe xerosis cutis was present in approximately 9% of the elderly population (according to the Overall Dry Skin score). A clinical review showed more than 50% of elderly patients have xerosis cutis due to a decreased rate of repair and the function of the epidermal barrier. According to our knowledge, there is minimal data regarding the prevalance of xerosis cutis in Indonesia.[3,4]

Education plays an important role in the management of xerosis cutis, such as how to identify and avoid triggering factors and how to break the itch-scratch cycle. A study about contact dermatitis knowledge level among batik workers, conducted in Madura, Indonesia, showed the knowledge level of the workers increased significantly when comparing

DOI : 10.20473/bikk.V34.3.2022.174-177

knowledge about contact dermatitis before and after health education. Another study about the prevention of contact dermatitis due to poor hand hygiene in the era of coronavirus disease 2019 (COVID-19) showed the knowledge level of the participants significantly increased after health education. These studies emphasize the importance of education for the management of skin diseases.[2,5,6]

Xerosis cutis is currently still the most common complaint related to a skin condition in the elderly population. However, many of them are still uninformed of this complaint. Based on that circumstance, good education for the elderly population is required for the management and prevention of xerosis cutis. This study was conducted as one of many contributions toward achieving sustainable development goals in the future, especially goal 3 (ensure healthy lives and promote well-being for all at all ages). This study aims to evaluate the level of knowledge in the elderly population about xerosis cutis before and after health education.

METHODS

This was an observational study involving 71 subjects. The data was collected using questionnaires. The inclusion criteria for this study were elderlies who were willing to participate in the study. The population of this study was elderlies (based on WHO classification) in the Retirement Association of Dr. Soetomo Hospital IK Restu Surabaya. The sampling technique used in this study was consecutive sampling. Subjects who were willing to participate in this study were asked to fill in questions on pre-test questionnaires about xerosis cutis, which consisted of 3 parts : questions about skin changes in the elderly (3 questions), risk factors for xerosis cutis (6 questions), and management of xerosis cutis (6 questions). After all subjects filled in the questions on the pre-test, health education was performed through lectures, discussions, the distribution of booklets, and educational videos. Health education is carried out offline by gathering all participants in one room and getting all types of education. After health education was presented, participants were asked to fiill out questions on the post-test. Pre and post tests are carried out offline and independently by getting directions from researchers. Results of the pre-test and post-test were analyzed as data that would present the level of knowledge of the subjects. This study had been approved by the ethics committee of Dr. Soetomo General Academic Hospital Surabaya (1509/112/3/VI/2022).

RESULT

Seventy-one subjects were involved in this study, consisting of 11 (15.49%) males and 60 (84.51%) females. The mean age in this study was 63.17 ± 4.51 years. The mean total score of the pre-test and post-test were 11.72 ± 1.475 and 12.58 ± 1.662 (from a total score of 15 if all the answers were correct), respectively (Table 1). The mean of correct answers for questions about skin changes in the elderly in the pre-test and post-test were 2.73 ± 0.560 and 2.86 ± 0.487 (from a total score of 3 if all the answers were correct). The mean of correct answers for questions about risk factors for xerosis cutis in the pre-test and post-test were 3.79 ± 0.893 and 4.18 ± 0.976 (from a total score of 6 if all the answers were correct). The mean of correct answers for questions about the management of xerosis cutis in the pre-test and post-test were 5.20 ± 0.839 and 5.48 ± 0.826 (from a total score of 6 if all the answers were correct) (Table 2).

Table 1. Pre-test and post-test analysis

Results (Mean ± SD)		*p*-value*
Pre-test	Post-test	
11.72 ± 1.475	12.58 ± 1.662	<0.001

*Wilcoxon test
SD: Standard deviation

Table 2. The subject's knowledge on xerosis

	Results (Mean ± SD)		*p*-value*
	Pre-test	Post-test	
Skin changes	2.73 ± 0.560	2.86 ± 0.487	0.046
Risk factor	3.79 ± 0.893	4.18 ± 0.976	0.002
Management	5.20 ± 0.839	5.48 ± 0.826	0.006

*Wilcoxon test
SD: Standard deviation

The analysis result using the Wilcoxon test showed the level of knowledge of the elderlies had significantly improved (p= <0.001) (Table 2). Significant improvements were made in terms of the level of knowledge on the topics of elderly skin's changes, xerosis cutis risk factors, and treatment of xerosis cutis with p=0.046, p=0.002, and p=0.006 (Table 3). This study revealed that 48 of 71 participants had xerosis cutis. The DLQI score assessed in this study showed from a total of 48 who suffered from xerosis cutis, 18 subjects (37.5%) felt their quality of life was affected by xerosis cutis (Table 3).

DISCUSSION

Xerosis cutis is a common skin manifestation in the elderly; more than 50% of the elderly suffer from xerosis cutis. Research conducted in Rotterdam by Mekic et al. in 2019 showed that, of 5547 research subjects, 60% had complaints of dry skin. This study involved 71 elderly subjects, and 48 individuals (67.61% of them) suffered from xerosis cutis. Table 1 shows that majority of the research participants were female (60; 84.51%).[4,7]

Xerosis cutis, particularly when accompanied with pruritus, can affect patients' quality of life. It has been suggested that pruritus in the population over the age of 65, due to the chronic, lasting condition, can lead to reduced sleep quality and impaired daily activities. Other studies by von Stülpnagel et al. stated that patients with xerosis cutis have a lower quality of life, more dysmorphic concerns, and higher general anxiety. Impaired quality of life may result from the symptoms, long-term or invasive dermatological treatments, and psychosocial issues related to the appearance of the disease.[8–11]

Xerosis cutis is a common finding on physical examination of the elderly, regardless of whether patients have subjective complaints of dry skin or not. The clinical manifestations are extensive dry, rough skin with flaking scale, with the lower extremities most often affected. Health education plays an important role in identifying xerosis cutis, and thus the elderly individuals can prevent it, avoid triggering factors, and manage it. Increasing the level of knowledge of the elderly individuals regarding management of xerosis cutis, such as application of adequate skin care, may also be crucial in terms of avoiding severe conditions and also its complications.[2,8]

Health education is important for the management of skin diseases. A systematic review study showed that education as an adjunct to treatment can improve patients' quality of life and reduce disease severity. Health education aims to develop a good understanding of the specific disease and its management, as well as improve coping behaviors also improving coping behaviour for dealing with the skin condition, to improve quality of life and disease control.[11]

In this study, the mean pre-test score was 11.72 ± 1.475 and the mean post-test score was 12.58 ± 1.662. Elderly knowledge hasimproved significantly after the health education session about xerosis cutis (p<0.05). There has been a 5.73% increase in total correct answers from 78.12% in the pre-test to 83.85% in the post-test.

The first chapter of the questions was about skin changes in the elderly. The mean pre-test score was 2.73 ± 0.560 and 2.86 ± 0.487 for the post-test (p<0.05). The second and third chapters of the question were about the risk factors and management of xerosis cutis especially in the elderly. The total correct answer for each questionnaire has increased from 3.79 ± 0.893 to 4.18 ± 0.976 and 5.20 ± 0.839 to 5.48 ± 0.826 respectively. Elderlies' knowledge of xerosis cutis has improved after the health education. This study shows an increase in the level of knowledge among the elderly about xerosis cutis after providing health education, both in terms of total and detailed knowledge about changes in the skin of the elderly, risk factors for xerosis cutis and the management of xerosis cutis.

Elderly peopple can prevent complications of xerosis cutis by using skin care to protect and prevent skin damage, including the use of appropriate moisturizers and soaps. Moisturizer is an ingredient that serves to increase the hydration of the stratum corneum, which makes the skin softer. The choice of the type of moisturizer is adjusted to the clinical condition or severity of xerosis cutis and the extent of the lesion. The use of moisturizers should be applied at least twice per day or can be used more than twice per day if the skin feels dry and itchy.[12,13]

The recommended soap for patients with xerosis cutis is a soap that has a neutral pH and a moisturizer. Patients are advised to avoid soaps that have an alkaline pH and synthetic surfactants, such as sodium lauryl sulfate (SLS). Soaps that have an alkaline pH can cause the pH of the skin to increase and can affect the acidic protective layer on the skin, resulting in changes in the normal flora balance in the skin. These changes can increase the risk of colonization of microorganisms on the skin, which will reduce the function of the skin barrier. Currently, many alternative skin cleansers besides soap and water are being developed; these skin cleaning products do not need to be rinsed after use, so they can reduce damage to the skin barrier and maintain skin pH. Patients are also advised to dry the skin with a towel or flannel by patting to prevent damage to the skin.[12]

Other important aspects that need to be considered are related to educating patients with xerosis cutis, namely preventing skin tears because dry skin is prone to tearing due to pulling force; applying sunscreen with minimum SPF 30; taking a short shower, limited to a maximum of 10 minutes; bathing with room temperature water or body temperature; avoiding products that contain fragrance; using soap that has a pH close to neutral; and baby soap can be recommended to be used because it can improve dry skin conditions as well as moisturizing soap at a cheaper price. [12-15]

In conclusion, this study showed that after the health education, there was an improvement in the level of knowledge in the elderly about xerosis cutis, which is still the most common skin problem in the elderly.

ACKNOWLEDGEMENT

We thank Airlangga University for supporting this research.

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