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The awareness of epidermal parasitic skin diseases among patients with mental health problems and alcohol addiction of the Provincial Complex of Psychiatric Health in Olsztyn

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ABSTRACT

Introduction: Lifestyle and the neglect of hygiene are factors which increase the risk of the incidence of epidermal parasitic skin diseases (EPSD) such as pediculosis and scabies among alcoholics and people with mental health problems. A patient's knowledge about the risk factors, route of transmission, prophylaxis and symptoms of the disease are the bases for health education.

Aim: An evaluation of the state of knowledge of EPSD among patients with mental health problems and alcohol addiction at the Provincial Complex of Psychiatric Health in Olsztyn.

Material and methods: The study covered a group of 154 adult patients treated in 2011 in Provincial Complex of Psychiatric Health in Olsztyn. The research was conducted by using an anonymous self-designed diagnostic survey questionnaire.

Results and discussion: In the examined population, 51% of the people had a satisfactory knowledge of EPSD. In 27% of respondents the knowledge was fragmented, and in 21% at the high level. There were no significant differences between the groups of respondents distinguished by gender, age, place of residence and education. In 54% of examined patients, the knowledge of EPSD and their prophylaxis was rated as fragmentary. The information regarding symptoms and sources of pediculosis and scabies infections was fragmentary in 46% of patients, and satisfactory in 34% of respondents.

Conclusions: The general level of knowledge in patients with mental health problems and alcohol addiction on EPSD is satisfactory. Almost half of the respondents showed a fragmentary knowledge concerning the prophylaxis of EPSD, symptoms and sources of pediculosis and scabies infection. Health education should primarily concern the prevention of pediculosis and scabies, and strengthen the patients' awareness of spread easiness these parasites in the environment.

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1. Introduction

Epidermal parasitic skin diseases (EPSDs) are a heterogeneous category of infectious diseases in which parasite-host interactions are restricted to the stratum corneum, the upper layer of the epidermis, where ectoparasites complete their life cycles, in part or entirely. Scabies and pediculosis are included among the six major EPSDs.[1]

Scabies is caused by the cosmopolitan mite *Sarcoptes scabiei* var. *hominis*. The pathognomonic signs of scabies are burrows, erythematous papules, and generalized pruritus with nocturnal predominance. Burrows are typically located on the interdigital spaces of the hand, the flexure surface of the wrist, elbows, genitalia, axillae, umbilicus, belt line, nipples, buttocks and penis shaft.[2] Scabies are often associated with pyoderma, primarily caused by a secondary invasion of pathogenic bacteria, especially from group A streptococci (*Streptococcus pyogenes*).[3] The most common source of scabies transmission is skin-to-skin contact with infected individuals through social or sexual interaction, and rarely by using contaminated bedclothes, underwear, or clothing.[3] The risk of transmission increases with the duration and frequency of direct skin-to-skin contact[4]; therefore scabies frequently occurs in institutions such as hospitals, nursing homes, prisons and institutions of education.[2,5]

Pediculosis is caused by three types of lice – *Pediculus humanus capitis* (head louse), *P. humanus corporis* (body louse) and less commonly *Pthirus pubis* (pubic or crab louse).[6] Lice are obligate human blood-sucking parasites. *Pediculus humanus capitis* parasitizes on the scalp of the host; *P. humanus corporis* lives in a person's clothes; hence, the clinical symptoms are located mainly in the place of clothing adhesion (neck, axillae, groin, and buttocks); and *P. pubis* occurs on the pubis and axillaes, rarely on the eyebrows or eyelashes.[1,7] Pediculosis most often manifests in intense pruritus, accompanied by inflammatory erythematous macules, papules and wheals, as well as excoriations, which may also be visible. Secondary bacterial infections may occur as a result of scratching.[8] Lice are typically transmitted through direct person-to-person contact, as well as indirectly through contacts with contaminated clothing, bedding or other objects. Pubic lice infection usually occurs through sexual contact, and therefore mainly presents in adults.[9]

In Poland epidemiological analyses revealed that scabies and pediculosis are correlated with people from low socioeconomic populations, with poor hygienic conditions and poor health care systems.[10–12] In 2008, according to a report of the National Institute of Public Health – National Institute of Hygiene, 2653 cases of pediculosis and more than 11 000 cases of scabies were recorded in Poland.[13] Since 2009 however, scabies and pediculosis stopped being an obligatory concern of the national sanitary and epidemiological control due to the Act of the Prevention and Combating of Infections and Infectious Diseases in Humans of 5 December 2008 (Journal of Laws 2008; no 234, item 1570). The current assessment of the incidence of these parasitic infections has been left to individual research centers.

In the prevention of the spread of infectious diseases crucial is the awareness of patients about risk factors and sources of infection, prophylactic measures and the recognition of disease symptoms for proper medical intervention. This applies in particular to people at high risk of morbidity. The data show that due to the neglectful lifestyle and low hygiene level among groups of alcoholics and people with mental problems, the common EPSDs are scabies and pediculosis.[14,15]

2. Aim

The aim of the study was to determine the state of knowledge concerning EPSDs among alcoholics and people with mental problems hospitalized in the Provincial Complex of Psychiatric Health (WZLP – from Polish Wojewódzki Zespół Lecznictwa Psychiatrycznego) in Olsztyn.

3. Material and methods

The study was conducted on a group of 154 adult patients hospitalized during July and August 2011 in WZLP. The largest examined group was represented by outpatients (39%, $n = 60$) and patients of the Ward of Addiction Therapy (41%, $n = 63$). The study group consisted of 70 women (45%) and 84 men (55%). Most subjects were over 31 years of age (87%, $n = 134$), had secondary education (46%, $n = 71$), and lived in the city (79%, $n = 122$) (Table 1). The study was conducted by using a self-designed diagnostic survey questionnaire. Participation in the study was voluntary, and respondents were provided full anonymity during data collection and processing.

The questionnaire consisted of 5 questions concerning the demographic and social status of the respondent and 17 multiple-choice questions. The questions checked the basic knowledge of parasites and the EPSDs – pediculosis and scabies. Respondents were asked which social groups were affected by these diseases, who should receive treatment if the disease occurs in the family and ways of preventing infection. There was also verification of the patient's ability to recognize the symptoms of pediculosis and scabies, knowledge of the sources of infection and previous morbidity. Respondents also evaluated their knowledge in this field, indicated its source, and expressed their opinion about pediculosis and scabies as a social problem.

To measure the level of knowledge with regard to EPSDs, the point scale was used. For each correct answer to the question 1 point was awarded, for incorrect or incomplete answers 0 points were awarded. The respondent could obtain a maximum of 34 points. According to the number of points, respondents were divided into four groups: group A – high level of knowledge (respondents obtained at least 76% of all possible points); group B – satisfactory level of knowledge (respondents obtained a score in the range of 51%–75%); group C – fragmentary level of knowledge (respondents obtained a score in the range of 26%–50%), group D – low level of knowledge (respondents obtained 25% or less).

The data were analyzed using χ^2 test. A significance level of 0–0.05 was assumed. The test was conducted using Statistica for Windows 7.1 (StatSoft Inc., Tulsa, Oklahoma, USA).

Table 1 – Distribution of patients' knowledge according to gender, age, education and place of residence.[a]

	Knowledge level								Total	
	High		Satisfactory		Fragmented		Low			
Gender										
Women	13	(18.6)	40	(57.1)	17	(24.3)	0	(0.0)	70	(100)
Men	19	(22.6)	39	(46.4)	25	(29.8)	1	(1.2)	84	(100)
Age in years										
18–30	2	(10.0)	12	(60.0)	5	(25.0)	1	(5.0)	20	(100)
31–40	11	(25.0)	22	(50.0)	11	(25.0)	0	(0.0)	44	(100)
41–50	12	(25.5)	24	(51.1)	11	(23.4)	0	(0.0)	47	(100)
>50	7	(16.3)	21	(48.8)	15	(34.9)	0	(0.0)	43	(100)
Education										
Primary	4	(28.6)	8	(57.1)	2	(14.3)	0	(0.0)	14	(100)
Vocational	11	(20.8)	28	(52.8)	13	(24.5)	1	(1.9)	53	(100)
Secondary	12	(16.9)	36	(50.7)	23	(32.4)	0	(0.0)	71	(100)
Higher	5	(31.3)	7	(43.8)	4	(25.0)	0	(0.0)	16	(100)
Residence										
City	24	(19.7)	61	(50.0)	36	(29.5)	1	(0.8)	122	(100)
Village	8	(25.0)	18	(56.3)	6	(18.8)	0	(0.0)	32	(100)
Total	32	(20.8)	79	(51.3)	42	(27.2)	1	(0.7)	154	(100)

[a] All numbers are given as *n* (%).

4. Results

Generally, the level of knowledge concerning EPSDs of WZLP patients in Olsztyn was determined to be at a satisfactory level. On average, respondents received 61.1% of the total points (20.8 ± 5.16 points). The lowest number of points scored was 8, the maximum was 32 (1 person). In the group of 154 respondents, 79 (51.3%) showed a satisfactory level of knowledge (Table 1). Fragmented and high level of knowledge were determined in 42 (27.3%) and 32 (20.8%) patients, respectively. Only 1 (0.6%) patient was assessed as being at the low level of knowledge. There were no significant differences in the level of knowledge among groups of respondents distinguished by gender, age, place of residence and education.

4.1. *Knowledge of parasites and their location in human*

Respondents showed the best knowledge of parasites with respect to their location in the human body. In 68.8% of patients knowledge in this area was high and satisfactory (Fig. 1). Parasitic organisms and place where they occur in humans were correctly indicated by 85.7% of patients. Only 1.9% of respondents (3 patients) believed that parasites are not present in the human body. In order to verify the validity of this information, respondents were asked to indicate the parasitic organisms from among several others. Nearly all respondents (99.4%) rejected the nonparasitic organisms.

4.2. *Knowledge of the EPSD*

Worse results were obtained regarding patient knowledge of EPSDs and their prevention. In total, 53.9% of respondents showed a fragmentary knowledge in this area ($n = 83$) and 32.5% ($n = 50$) of patients had knowledge at a satisfactory level (Fig. 1). The majority of interviewees correctly classified scabies (90.9%) and pediculosis (78.6%) as EPSD. Only 35.0% of respondents ($n = 54$) considered psoriasis as an EPSD. Several patients also included AIDS ($n = 5$) and tuberculosis ($n = 2$) as parasitic infections.

According to the respondents, the most susceptible to EPSDs are people living in poor hygienic and sanitary conditions (86.3% of responses), children in preschool and school age (66.2% of responses), infants (13.6%, $n = 21$). In total, 59.1% ($n = 91$) of respondents claimed that only household family members of the patient having a EPSD should be treated; 48.7% ($n = 75$) of respondents believed that the treatment should be applied to all people that have had direct contact with an infected person; 5.8% ($n = 9$) of respondents believed that only the infected person should be treated.

In the opinion of the patients of WZLP in Olsztyn, the basic preventive measures against EPSDs are proper hygiene of the skin and hair (87.0%, $n = 134$), regular washing of clothing (70.8%, $n = 109$) and frequent washing of bedding (57.1%, $n = 88$). More than half of respondents also included frequent cleaning and ventilation of dwellings (51.9%, $n = 80$).

4.3. *Knowledge of infection sources and symptoms of pediculosis and scabies*

The knowledge of symptoms and sources of pediculosis and scabies in 46.1% of WZLP patients was evaluated as fragmented and in 34.4% of respondents being rated as satisfactory. A high level of knowledge in this field was reported in 14.9% of patients, a low level of knowledge in 4.5% (Fig. 1).

All the respondents were aware that lice are parasites of the human scalp. As a second habitat of these parasites, 56.5% of respondents indicated pubic hair and underarms, but only 24.7% consider that lice may also be in the seams and folds of clothing. On the other hand, the habitats for scabies, according to WZLP patients are the skin of the hands (76.0%), groins

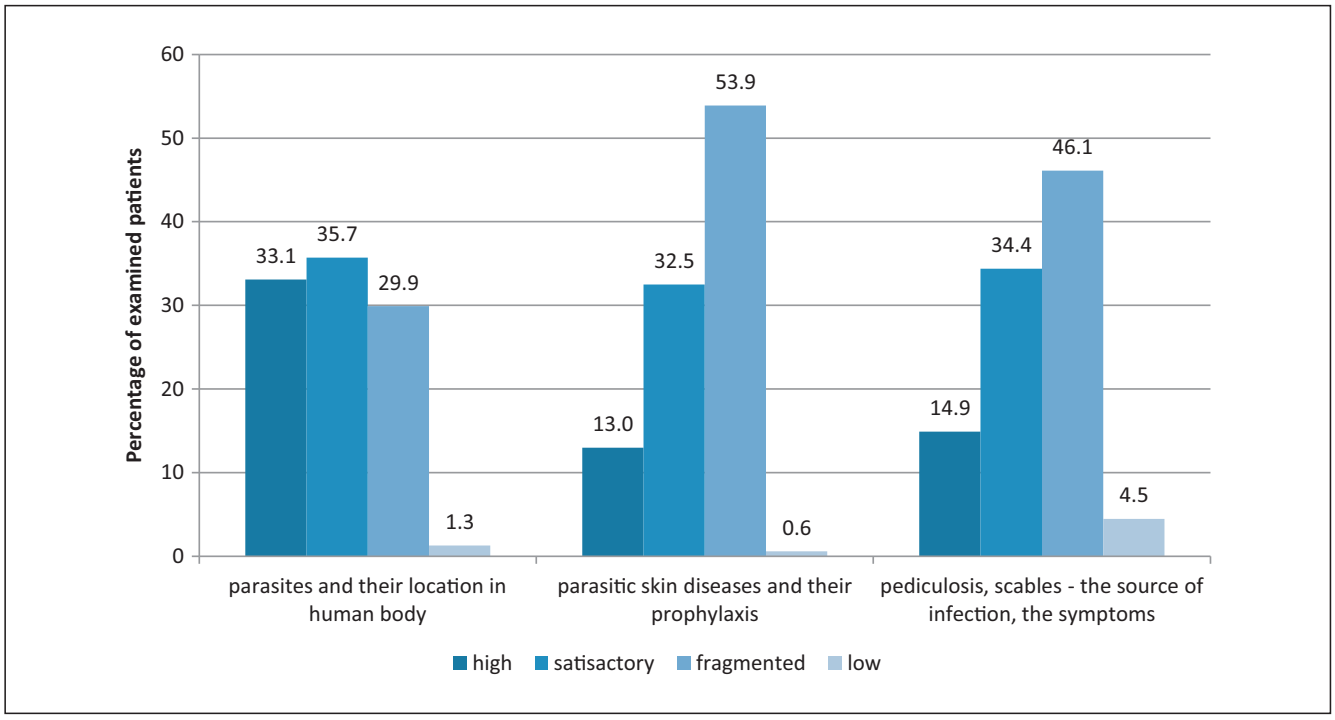

Fig. 1 – The level of patients' knowledge of parasites and human epidermal parasitic skin diseases.

(57.1%) and abdomen (50.7%). In the opinion of respondents scabies also occurs on the skin in the genital area (23.4%) and other parts of the body covered by hair (19.5%). Itching is a main symptom of pediculosis and scabies according to 55.8% ($n = 86$) and 56.5% ($n = 87$) of respondents, respectively. About 33.1% ($n = 51$) of respondents reported that itch caused by lice was associated with skin lesions and 37.7% ($n = 58$) of respondents believed that these symptoms are also caused by scabies. Patients state that skin lesions in pediculosis (8.4%) and in scabies (2.6%) may also occur without itching of the skin. Only some patients admitted to a lack of knowledge concerning the symptoms of pediculosis and scabies (2.6%, $n = 4$ and 3.9%, $n = 6$, respectively).

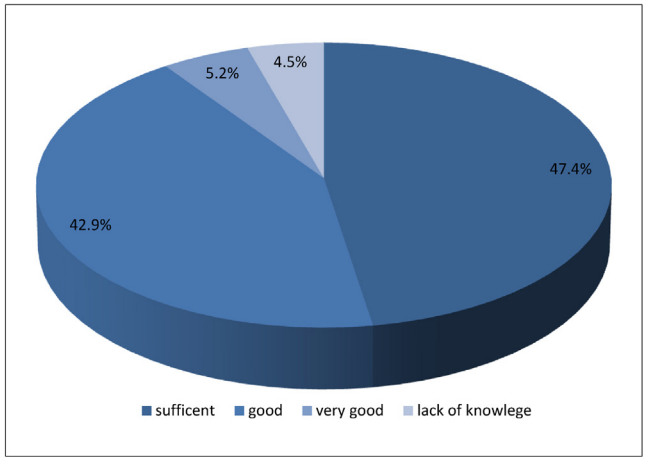

Fig. 2 – Self-assessment of patients' knowledge of parasites and human epidermal parasitic skin diseases.

Nearly all respondents (90.9%, $n = 140$) consider that using clothing, sleeping in bed sheets of infected persons and using their toiletries (60.4%, $n = 93$) can transmit pediculosis or scabies. According to respondents, sexual contact with an infected patient and hand holding (40.3% and 37.0%, respectively) are also high-risk behaviors. In the opinion of the respondents pediculosis or scabies can be transmitted by being in the same room with someone (42.9%) or by using their dishes (21.4%).

4.4. *Self-evaluation of knowledge of EPSDs and their source*

Nearly half of the 154 respondents assess their knowledge of EPSDs at sufficient or good level (47.4% and 42.9%, respectively) and only few of them consider their knowledge to be very good (5.2%) (Fig. 2). Almost equal number of respondents (4.5%) indicated a lack of knowledge in this area. Books and magazines (48.7%, $n = 75$) were the main source of information for respondents, followed by a doctor or nurse (38.3%, $n = 59$), family and friends (37.7%, $n = 58$) and electronic media as TV, radio or Internet (27.3%, $n = 42$). Only one of these sources was indicated by 63.3% of patients.

4.5. *Pediculosis and scabies as a social problem*

The majority of respondents (61.7%, $n = 95$) reported that the problem of pediculosis and scabies concerns all people. However, 16.2% of them excluded themselves from this group and indicated that this problem does not affect them, 14.3% ($n = 22$) of patients believed that EPSDs occur only in people with poor social conditions, 7.8% ($n = 12$) of respondents

considered that the problem of pediculosis and scabies is overstated in society.

4.6. *The incidence of scabies and pediculosis*

Among the 154 respondents, 57 (37.0%) patients reported the prevalence of scabies and pediculosis in the past: 10 (6.5%) patients suffered from scabies and 30 (19.5%) patients suffered from pediculosis. Both diseases were reported in 17 patients (11.0%). Significantly more women than men suffered from pediculosis and scabies. Among respondents with scabies, 14 (51.9%) patients were women living in urban areas. In the group of men scabies also occurred more frequently in persons from the urban environment (22.2%, $n = 6$). Similarly, pediculosis is more common in men and women from the city than from the country (53.2%, $n = 25$ and 27.8%, $n = 14$, respectively). Most patients infected with scabies and lice were aged 41–50 and had secondary education (42.1% and 47.4%, respectively). The majority of patients identified their social conditions as good or satisfactory (47.4% and 29.8%, respectively). All patients who had ever suffered from scabies used the assistance of medical care, but 3 (11.1%) responders also declared the use of home methods to treat symptoms. Most people infected with lice (68.1%, $n = 33$) also consulted a doctor, and 31.9% of them used home methods. Mainly itching and the accompanying skin lesions caused patients to visit the doctor (33.3%), 19 patients (42.2%) felt only itching, while 9 patients (21.4%) had only skin lesions.

5. Discussion

EPSDs like pediculosis and scabies have a major impact on the patient's relationships and close contacts, often causing an aversion of other people and isolation.[16] In the case of people with mental problems and alcoholics, EPSDs have a special significance because they are one more reason for social stigma and lack of acceptance. There is little published data about the incidence of pediculosis and scabies in these patients. Kumański and Pisarski[14] reported that among alcoholics treated at the Municipal Centre for Prophylaxis and Addiction Medicine in Lodz, pediculosis was noted in 26.7% of people reporting there, and 40.0% of them were patients with reinfestations. In these patients, lice invasions were often correlated with the nodular form of scabies and secondary bacterial infections. On the other hand, Kuruvila et al.[15] reported that in patients with a primary psychiatric condition (depression, schizophrenia, manic depressive psychosis) who had cutaneous diseases, parasitic infestations occurred in 13.0% of the study group. Scabies and pediculosis presented in 7.7% and 5.3% of patients, respectively. Epidemiology studies of scabies conducted by Buczek et al.[11] in the Swietokrzyskie Voivodship between 1990 and 1998 also indicated cases of this ectoparasitosis in patients and medical staff of psychiatric hospitals for children and adults. Our data obtained from a questionnaire study conducted among patients of WZLP in Olsztyn indicate that in this group there also occurred EPSDs. These patients declared that they were under medical supervision during the infestation of ectoparasites. Despite the lack of medical documentation confirming the parasitosis, we can support that pediculosis and scabies are well known to this group of patients.

Generally, the level of knowledge concerning EPSDs of WZLP patients in Olsztyn was determined to be at a satisfactory level. Respondents did not have a problem with properly defining parasitic organisms, their location on the human body and the classification of parasites species. Most of them properly attributed scabies and pediculosis to EPSD. The alarming fact was that only 35% of patients included psoriasis, chronic noninfectious inflammatory and proliferative skin disease as a parasitic disease[17] and several of them included tuberculosis and AIDS (infectious diseases of viral and bacterial etiology) to the EPSD category. The data also suggest that the respondents are aware that poor personal hygiene is the main risk factor for EPSDs. According to 86% of the respondents, skin parasitosis concerns people with a poor sanitary level, with the main factors being a lack of hair and skin hygiene and irregularly washing clothing and bedding. Most of respondents (91%) indicated that the use of clothing and bedding of an infected person favor transmission of lice and scabies. However, only slightly more than half of the respondents knew that high-risk behavior includes the use of toiletries, sexual contact and in the case of scabies prolonged hand holding. Environmental studies have demonstrated that with scabies it is also important to care for the cleanliness of living quarters, because live mites have been identified in house dust samples from homes of infected people.[18] In our study 52% of respondents indicated cleanliness as a means to prevent scabies. In summary, knowledge of prevention, high-risk behaviors and sources of infection is fragmentary in half the patients with mental problems and alcohol addiction at WZLP in Olsztyn. The study patients also have low awareness regarding the easy spread of pediculosis and scabies in the environment. This is confirmed by the answers of patients from WZLP on the question of the treatment of scabies and pediculosis in the family. Nearly half of the respondents were aware that in such a situation, all household members of the patient and those who had been in close contact with them should be treated, not only the infected person. Nearly half of the respondents had fragmentary knowledge about the symptoms of skin parasitic infections. Although all respondents indicated pruritus as the primary symptom of pediculosis and scabies, slightly more than 30% associated it with skin lesions. The data indicate that skin lesions are frequently nonspecific and remained an itchy rash. In scabies, atypical clinical features characteristic for patients with secondary infections and long-term parasitic invasion can cause diagnostic problems. In some cases, skin symptoms can be mild.[2] On the other hand, with pediculosis skin lesions can be so intense that a diagnosis of pityriasis, seborrheic eczema, impetigo and psoriasis should be considered.[8] The awareness of WZPL patients in Olsztyn of parasitic skin diseases based on the results of the questionnaire study is consistent with their self-esteem information level on the area. Over 90% of patients considered that their knowledge is sufficient and good. Respondents acquired knowledge in different ways, mostly from books and magazines. For 38% of respondents the educator–informer was a doctor or nurse, and to a similar extent family members and friends. A negligible contribution of medical staff to the education concerning parasitic skin

diseases is alarming. According to modern trends, health education is one of the forms of care. Health education activities should be a competency of both nurses and doctors, and should allow the patient to acquire the knowledge and skills necessary to obtain healthy behaviors.[19] According to the principles of health education, the first step should be defining the cognitive deficits of patients. According to Pabiś et al.[19] tests are one of the methods used by professionally active nurses to identify deficits in the knowledge and skills of patients. The survey used in our study showed that education concerning parasitic skin diseases of patients with mental problems and alcoholics should primarily concern the prevention of scabies and pediculosis and raise awareness of how easily spread parasitosis can be in the human population.

6. Conclusions

1. The general level of knowledge of patients with mental problems and alcohol addiction hospitalized in the WZPL in Olsztyn about EPSDs is satisfactory. Gender, age, place of residence and the education level of the respondents had no significant effect on the knowledge level.
2. Nearly half of the respondents revealed a fragmentary knowledge about prophylaxis, symptoms and sources of scabies and pediculosis.
3. Identification of patient knowledge concerning EPSDs is the basis for elementary health education. Primarily, this health education should concern prophylaxis pediculosis and scabies and strengthen awareness of the necessity for immediate medical consultation if symptoms occur in order to reduce the spread and incidence of these diseases.

Conflict of interest

None declared.

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