in assessing NB-UVB-induced response in vitiligo, and may also be used as a marker in monitoring disease progression.

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Facets of shame are differently expressed in dermatological disease: a prospective observational study

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Dear Editor, Recent years have witnessed a growing interest in clinical research on the experience of shame and its associations with psychological functioning and well-being.[1] Shame is a self-regulatory function of the body in adapting to the social environment, as well as maintaining and restoring self-esteem and self-acceptance.[2] Feelings of shame have been reported to cause psychosocial restriction in patients with various dermatological diseases such as infection, or diseases with visible skin lesions like psoriasis or acne.[3,4] These have a significant impact on the individual's social interaction and well-being.[4]

In a prospective single-centre observational study, approved by the ethics committee of the Medical University Graz (30-241 ex 17/18), we examined consecutive dermatological outpatients with a variety of diagnoses: psoriasis, tumours, inflammatory diseases, infections, allergic diseases and eczema. In total 296 individuals participated; 238 questionnaires were returned and the data from 201 were eligible for analysis. The mean ± SD age was 43·6 ± 17·7 years (range 23–80) and 113 were women (56·2%). The subjective burden of disease was assessed on a 10-point scale.

The patients completed two questionnaires. (i) Skin Shame Scale (SSS-24). This psychodermatological assessment captures an individual's burden of skin shame. It consists of 24 items, which have to be answered on a Likert scale (1–5 points).[5,6] (ii) SHAME (Shame Assessment scale for Multifarious Expression of shame). This questionnaire includes three subscales based on 21 items (bodily shame and cognitive shame as adaptive, and existential shame as pathological–dysfunctional shame), and a summary score. Answers are given on a six-point Likert scale.[2] For controls we used data from 488 individuals (of 597 participants eligible for analysis) without skin disease, mean ± SD age 38 ± 15·2 years (range 18–86), with 325 women (66·6%). These controls were recruited via an online survey at the Medical University Graz, or were hospital residents or related persons. The only difference between controls and dermatological patients was the higher educational level of the former.[5]

ANOVAs and χ^2-tests, and ANCOVAs (age as the control variable) were used for group comparisons. Tukey's honestly significant difference test was used for post hoc comparisons.

Patients with psoriasis, infection or eczema exhibited the highest skin shame levels ($P < 0{\cdot}001$) (Table 1). However, there were no differences between the patients in regard to all other shame aspects. Skin shame was more pronounced in patients with visible skin lesions ($P < 0{\cdot}01$) and a longer duration of disease ($P < 0{\cdot}05$). Compared with controls without skin disease, dermatological patients had a higher level of skin shame ($P < 0{\cdot}001$). Disease burden was highest for eczema and infection (eczema = infection > allergic = tumours; $F = 3{\cdot}55$, $P = 0{\cdot}004$, $\eta^2 = 0{\cdot}09$).

In summary, patients with psoriasis, inflammatory skin disease or eczema had especially high levels of skin shame, but the patient groups did not differ in other aspects of shame. Dermatological patients had a higher level of existential shame ($P < 0{\cdot}001$), but lower cognitive shame ($P < 0{\cdot}01$) compared with controls. This can be explained by the fact that patients develop denial and cognitive avoidance strategies, as described in those with acne.[4] This aspect may also have played a role

Table 1 Differences between various diseases regarding the aspects of shame, visibility of skin disease and duration of disease

Variable	Disease duration ≥ 5 years, n (%)[b]	Age (years)	SSS-24 (score)	SHAME bodily	SHAME cognitive	SHAME existential	SHAME summary score
Total	61 (50)	43·5 ± 17·8	57·8 ± 18·0	2·60 ± 1·07	4·00 ± 1·18	1·84 ± 0·92	2·81 ± 0·81
P	30 (77)	47·9 ± 14·6	65·3 ± 17·6	2·42 ± 0·99	3·98 ± 1·19	1·69 ± 0·74	2·69 ± 0·76
T	7 (39)	51·7 ± 20·1	48·5 ± 15·1	2·47 ± 1·06	3·79 ± 1·37	1·90 ± 0·97	2·72 ± 0·83
ID	8 (36)	40·7 ± 18·5	65·1 ± 15·6	2·60 ± 1·09	4·09 ± 1·20	1·78 ± 0·93	2·83 ± 0·82
I	5 (29)	33·7 ± 14·7	53·6 ± 18·2	2·88 ± 1·13	4·24 ± 0·92	2·05 ± 1·09	3·05 ± 0·76
A	5 (45)	43·4 ± 15·1	48·9 ± 15·6	2·62 ± 0·98	3·96 ± 1·14	1·83 ± 0·81	2·81 ± 0·79
E	6 (38)	34·7 ± 15·6	62·6 ± 17·5	2·86 ± 1·20	4·04 ± 1·11	1·92 ± 1·14	2·94 ± 0·95
	$\chi^2 = 17{\cdot}8$**, [c]	F = 5·88***	F = 8·29***	F = 0·43	F = 0·15	F = 0·71	F = 0·39
	P = 0·003	P = 0·001	P < 0·001	P > 0·05	P > 0·05	P > 0·05	P > 0·05
		$\eta^2 = 0{\cdot}13$[d]	$\eta^2 = 0{\cdot}18$[e]				
Visible			61·6 ± 17·3	2·68 ± 1·10	4·06 ± 1·15	1·90 ± 1·01	2·88 ± 0·82
Invisible			53·1 ± 17·5	2·47 ± 0·99	3·92 ± 1·25	1·77± 0·75	2·72 ± 0·78
			F = 9·88**	F = 1·56	F = 0·59	F = 0·84	F = 1·64
			P = 0·002	P > 0·05	P > 0·05	P > 0·05	P > 0·05
			$\eta^2 = 0{\cdot}05$				
< 5 years[a]			58·9 ± 17·8	2·64 ± 1·00	4·06 ± 1·11	1·86 ± 0·81	2·85 ± 0·72
≥ 5 years[a]			65·4 ± 16·4	2·50 ± 1·00	4·15 ± 1·18	1·68 ± 0·82	2·78 ± 0·77
			F = 4·42*	F = 0·55	F = 0·17	F = 1·53	F = 0·56
			P = 0·038	P > 0·05	P > 0·05	P > 0·05	P > 0·05
			$\eta^2 = 0{\cdot}04$				
Patients			57·8 ± 18·0	2·60 ± 1·07	4·00 ± 1·18	1·84 ± 0·92	2·81 ± 0·82
Controls			44·6 ± 13·7	2·79 ± 1·03	4·24 ± 0·95	1·59 ± 0·68	2·87 ± 0·71
			F = 108·02***	F = 4·96	F = 7·94**	F = 15·94***	F = 0·97
			P < 0·001	P > 0·05	P = 0·003	P < 0·001	P > 0·05
			$\eta^2 = 0{\cdot}14$		$\eta^2 = 0{\cdot}01$	$\eta^2 = 0{\cdot}02$	

The data are presented as the mean ± SD unless stated otherwise. SSS-24, Skin Shame Scale; SHAME, Shame Assessment scale for Multifarious Expression of shame; A, allergic diseases (n = 27); E, eczema (n = 22), ID; inflammatory diseases (n = 35); I, infection (n = 27); P, psoriasis (n = 49); T, tumours (n = 41). [a]Disease duration. [b]Missing data for 78 individuals. [c,d,e]Post hoc (significant differences): [c]P > T = ID = E = I = A; [d]P = T > I = E; [e]P = E = ID > T = A. *P < 0·05, **P < 0·01, ***P < 0·001. The exact P-value is stated for all significant comparisons (except for P < 0.001).

in patients with psoriasis, who had the highest skin shame score but the lowest SHAME summary score compared with the other patient groups. Furthermore, patients with psoriasis seem to develop a coping mechanism to protect themselves from stressful emotional responses by blocking the processing of disgusted facial expressions encountered in others.[7]

Disease persisting for > 5 years was associated with higher skin shame. Therefore, the prolonged burden of a disease, as well as visible skin lesions, may result in a fear of negative evaluation and feelings of disgust.[7,8] Rzepa *et al.* mentioned that, on a self-reported questionnaire, genital lesions in sexually transmitted diseases, including HIV infection, produce more shame than lesions in patients with psoriasis.[3] This questionnaire cannot be compared with the very specific skin shame questionnaire that was used in our study. We suggest that a variety of shame aspects may be involved, namely skin shame on visible areas and general shame in infections including sexually transmitted diseases. The number of patients was too small to draw final conclusions in this respect.

Shame may be regarded as an important aspect of the psychosocial burden of skin disease, and should be given special attention in the future. The results of these investigations will have further implications on future treatment strategies and are likely to improve health outcomes in dermatology patients.

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Real-world data for direct stage-specific costs of melanoma healthcare

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Dear Editor, In Europe, melanoma is the fourth most common cancer diagnosed in young adults (20–45 years old).[1] It also has one of the fastest-growing incidence rates globally, and this trend is expected to continue in all European countries.[2] Thus, and also due to the costly new treatment options available, the economic burden of this illness is expected to keep increasing as well.[3]

In times of limited resources, evidence of the cost of a disease should be among the main pillars supporting policymakers. Thus, we aimed to provide a detailed estimate of the real-world, stage-specific, direct healthcare costs of melanoma from the perspective of the Italian National Healthcare Service, to enable policymakers to draw comparisons and make decisions regarding the allocation of public resources in this era of promising, but expensive, novel pharmacological strategies.

We considered 599 cases of melanoma diagnosed in 2015 in four provinces of the Veneto region. Melanomas of unknown thickness at diagnosis (39 patients) were disregarded. We considered the costs of delivering care to patients from the first suspicion of pathology until the end of the second year after the diagnosis, stratified by cost item and tumour–nodes–metastasis (TNM) stage of melanoma at diagnosis, in two ways. We calculated firstly, overall costs (including all the health expenditures of a given patient) and secondly, melanoma-specific costs (including only procedures directly related to melanoma) according to the Veneto region's diagnostic and therapeutic patient care pathway.[4] Only direct costs sustained by the regional health authorities were considered, including chemotherapy and radiotherapy. Cost data were drawn from official reimbursement tariffs in effect in Veneto in 2016.[5,6] Each patient was linked via a unique anonymous identification code to all administrative data relating to hospital admissions, hospice admissions, ambulatory care services, drug usage, emergency room visits and medical devices.

New drugs were sometimes still being tested within clinical trials, and thus were not being recorded in the administrative databases. We therefore checked for any such drug usage in the databases of the relevant clinical trials, and estimated their costs on the basis of the duration of therapy and the dosage administered (using the prices negotiated between the Veneto healthcare system and the pharmaceutical companies involved). Ethical approval was obtained from the Veneto Oncological Institute's ethics committee (no. 695/20·10·2016).

Table 1 shows the total and individual cost of 560 patients with melanoma during the first year after their diagnosis, and of the 548 still alive during the second year. During the first year, early-stage patients (91·8% of all cases) accounted for the majority (62·3%) of the expenditure (€1 135 760 for melanomas in stages I–II), whereas in the second year, patients with advanced disease (7·3%) absorbed the largest share (€531 534, 59·8%).

Costs were higher with higher stages of melanoma. Population-based, patient-level data enabled us to disaggregate our estimates by stage at diagnosis. A study on real-world costs stratified by stage was conducted in Sweden by Lyth *et al*. in 2016,[7] but their costs were considerably higher: from €5448 for a stage I patient to €32 505 for a stage IV patient in the first year, which then decreased in subsequent years to €3654 and €16 623, respectively. The Swedish study estimated higher costs, despite expensive new drugs used in patients with metastases not being included. Another multicentre international study[8] conducted after the introduction of ipilimumab on real-world data only for advanced-stage disease showed that the average costs of care for patients with melanoma are lower in Italy than in other European countries: €11 696 in Germany, €6748 in Spain and €3746 in Italy. These differences may be due, for example, to different national health policies and price negotiations of drugs or devices, and to the different overall production costs of hospital or ambulatory care.

Hospital admissions are the largest cost item for TNM stages I–III during the first year. As the feasibility of surgery declines, oncological therapies predominate. During the second year, surgical resections become infrequent, whereas the costs of follow-up rise, especially for early-stage disease. For the more advanced stages, the cost of drugs gradually prevails.

The financial burden of melanoma is considerable for national healthcare budgets, and the distribution of these costs between the different stages of the disease needs to be understood. Our analyses appear fundamental to the assessment of the economic value of screening, as we have demonstrated that the earlier the stage at diagnosis, the lower the cost.