Health Behavior Changes in Cutaneous Melanoma Survivors

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Received: December 16, 2018 Accepted: May 20, 2019 ABSTRACT Aim of this study was to investigate changes in health behavior of melanoma survivors with emphasis on safe sun behavior (SSB) and skin self-examination (SSE). We also identified factors with significant impact on SSE improvement. We performed a cross-sectional (epidemiological) survey based on a structured questionnaire. 150 patients from three medical institutions were invited and 144 patients responded. Statistical analysis was performed with SPSS version 23.0, with the level of significance set to 0.05. After being diagnosed with cutaneous melanoma, patients significantly improved preventive health behavior: 68.1% showed improvement in SSE, and 91.5% of patients improved SSB. There was statistically significant (P<0.001) improvement in the frequency of skin examination, examination of poorly visible areas (between the toes, genitals), and obtaining help in examination. Use of melanoma images remained scarce. Results for SSB were even better, and statistically significant improvement was recorded in all areas: using higher UV protection filters, wearing sunglasses, headgear, long sleeves, and trousers, and especially in staying in deep shade during hours of heavy UV radiation. The only factor with a positive influence on expected improvement in SSE was female gender. On the other hand, there were two factors that had a negative impact on SSE: patients with melanoma stage 1 and patients who had already self-examined themselves before their melanoma diagnosis. Preventive health behavior improved significantly after diagnosis of cutaneous melanoma. Patients markedly improved SSB and substantially enhanced SSE. We believe that it is reasonable to improve SSE further, encouraging patients by increasing their feeling of self-efficacy.

KEY WORDS: melanoma, melanoma survives, health behavior

INTRODUCTION

Cutaneous melanoma is one of the most common malignancies in the world. Given the possibility of aggressive metastases, it is the most dangerous form of skin cancer (1). The incidence of melanoma is highest in Europe: based on estimated age-standardized (AST) incidence rates for the whole world in 2018, among the 20 countries most heavily burdened with melanoma there are as many as 16 European countries; Slovenia is 10th with AST 18.6 (2).

The stage in which melanoma is detected and removed is the most important factor for disease prognosis and survival (1). Therefore, prevention re-

mains the key factor for the reduction of melanoma incidence and melanoma-rated mortality, on the primary and probably even more importantly on the secondary level (3-5). In particular, it is of utmost importance for melanoma survivors who have an increased (6) risk of acquiring next primary melanoma. Consequently, it is crucial to recognize the factors in health behavior that lead to adoption of safe behavior in the sun, self-examination, and the decision to visit a physician. Knowledge about changes in health behavior that occur after diagnosis of cutaneous melanoma can be integrated into intervention strategies of existing preventive health campaigns.

We designed a combined qualitative and quantitative study in order to acquire data about health behavior of Slovene patients with cutaneous melanoma. The aim of the first, qualitative part, was to understand how melanoma survivors in Slovenia perceive and cope with the disease. The key objective was identification of changes in health behavior of melanoma survivors after the diagnosis: what do they do, what matters to them, and whether they report anything we had not thought about or learned from the literature. In the second, quantitative part, we investigated to what extent patients changed their health behavior after diagnosis and which factors were crucial for the change. The aim was to detect determinants that enable people to adopt preventive behavior and, consequently, allow them to achieve earlier diagnosis of the next primary melanoma.

METHODS

We conducted a combined qualitative and quantitative study. First we performed a qualitative study (7-9) focusing on the patients' perspective to gain insight into the experience of Slovenian patients with cutaneous melanoma: how they reacted to the diagnosis and what changes they introduced in their health behavior. Using the qualitative approach of a collective case report, a demographically diverse group of ten patients with different forms and stages of cutaneous melanoma was selected. Semi-structured interviews conducted by a psychologist were recorded and transcribed verbatim. The approach of Qualitative Content Analysis was applied for data processing (10). Findings were implemented in the creation of a structured questionnaire for the quantitative part of the research.

The second part was designed as a cross-sectional (epidemiological) survey based on a structured questionnaire. Some of the questions were related to the issues raised in similar studies (11-13) and some were shaped according to the data from the qualitative part. The aim of the quantitative part of the study was to statistically evaluate the extent of changes in health behavior and to detect factors that trigger the changes. 150 patients from three institutions were invited: from a private dermatological outpatient clinic with concession, from the Department of Dermatovenereology, University Medical Centre Ljubljana, and from the Institute of Oncology in Ljubljana – 50 patients from each institution. Written informed consent was obtained from all individual participants included in the study.

The study was performed in accordance with the principles of the Helsinki Declaration, and the Republic of Slovenia National Medical Ethics Committee approved it on May 13, 2014 (ref. No. 139/05/14).

We used SPSS version 23.0 for the statistical analysis with the level of significance set at 0.05. Descriptive variables were represented by frequencies and proportions, while numeric variables were represented with a statistical mean and standard deviation. Variables were measured with the 5-level Likert scale, and we grouped the first three categories into the first and last two in the second category.

We used a hi-square test to investigate whether the proportion of patients who made progress in SSE or in SSB was different from 50%. The same applies to testing whether the proportion of patients who progressed in SSB was higher than the proportion of patients who progressed in SSE. Univariate and multiple logistic regression were used to check the association between individual factors and progress in SSE. The difference in the behavior before and after in the descriptive variables was tested using the McNemar test.

RESULTS

144 patients responded to the questionnaire; 47.9% were men, and the mean age was 56.3 years (Standard Deviation (SD) = 13.9). Most of them finished high school (44.1%) or had a bachelor's degree (43.4%), while 6.3% were less (elementary school) or more (master's degree and higher) educated. Family history of melanoma was positive in 18.9% of patients, negative in 78.3%, and unknown in 2.8%. Patients assessed themselves as being phototype I in 10.6%, phototype II in 54.9%, phototype III in 26.8%, and phototype IV and V in 7.7%.

76.5% of patients had one primary melanoma, and 23.5% had two or more primary melanomas.

Clinical and histopathologic characteristics of melanoma were as follows: most were located on the trunk (37.1% in the front and 19.6% in the back), 21% on the lower limbs, 14% on the upper limbs, and 8.4% on the head and neck. Histopathologically, the most



Figure 1. Patient ratios for progress in safe sun behavior (SSB) and skin self-examination (SSE).

numerous were superficially spreading melanomas (61%), 35% were melanoma in situ, 2% were nodular, and 2% were acral melanomas. 25.4% were stage 0, 45.5% stage I, 10.9% stage II, and 20.3% were stage Ill and higher.

In the qualitative part (10) of the study, patients emphasized safe behavior in the sun, strengthening of psychological stability and raising awareness of melanoma among others. They mentioned skin selfexamination less often. Statistical analysis revealed that data obtained in the qualitative part was consistently confirmed by the quantitative study results.

After being diagnosed with cutaneous melanoma patients significantly improved preventive health behavior: 68.1% showed improvement in skin self-examination (SSE), and 91.5% of patients improved safe sun behavior (SSB) (Figure 1).

The proportion of patients who changed their health behavior was significantly higher than 50% (P<0.001) in both determinants. Furthermore, the proportion of change between SSB and SSE was also significantly higher than 50% (P<0.001).

We compared patient health behavior regarding SSB and SSE before and after diagnosis of cutaneous melanoma specifically - by activity.

Improvement in the frequency of SSE was statistically significant (P<0.001), as was examination of poorly visible areas (between the toes, genitals) and obtaining help in examination. However, use of melanoma images from optional sources during the SSE procedure did not improve significantly after the melanoma diagnosis. Surprisingly, the monthly interval of SSE decreased after the diagnosis as patients tended to observe skin more often.

Results on SSB were even better, and statistically significant improvement was recorded in all areas: using higher UV protection filters, wearing sunglasses, headgear, long sleeves, and trousers, and especially in staying in deep shade during hours of heavy UV radiation.

We used logistic regression tests to look for factors that had significant impact on progress in

Table 1. Patient ratios for progress in safe sun behavior (SSB) and skin self-examination (SSE).								
	before	after	difference	n	Р			
Skin self-examination	78 (55,3)	136 (96,5)	76 (53,9)	141	< 0,001			
frequent ⁺ SSE [§]	24 (32,0)	42 (56,8)	22 (29,3)	75	< 0,001			
1x monthly SSE	29 (39,2)	24 (32,4)	13 (17,3)	75	0,442			
SSE with help	40 (52,6)	57 (75,0)	18 (23,7)	76	< 0,001			
Melanoma images	25 (32,9)	34 (44,7)	13 (17,1)	76	0,118			
Checking other body parts	25 (32,9)	45 (58,4)	22 (28,9)	76	< 0,001			
Family doctor's advice regarding SSE	65 (48,1)	98 (72,6)	37 (27,4)	135	< 0,001			
Family doctor's advice reg. SSB ^{§§}	71 (52,6)	102 (75,6)	33 (24,4)	135	< 0,001			
Low SPF ^{\$§§}	46 (32,4)	40 (28,2)	21 (14,8)	142	0,471			
High SPF	48 (34,0)	96 (68,1)	51 (36,2)	141	< 0,001			
Sunglasses	74 (52,5)	93 (66,0)	22 (15,6)	141	< 0,001			
Hat / headgear	53 (37,9)	93 (66,4)	43 (30,5)	141	< 0,001			
Long sleeves	27 (19,3)	62 (44,3)	37 (26,4)	140	< 0,001			
Long trousers	15 (10,7)	49 (35,0)	36 (25,7)	140	< 0,001			
Dense shade	82 (59,0)	127 (91,4)	46 (33,1)	139	< 0,001			
Knowledge of "shade rule"	66 (48,2)	104 (75,9)	41 (29,9)	137	< 0,001			

+ more often than once monthly; ⁶SSE: skin self-examination; ⁵⁶SSE: safe sun behaviour; ⁵⁶SPF: sun protection factor;

Progress in SSE			
no	yes	OR (95 & CI)	Ρ
24 (53,3)	45 (46,9)	1	
21 (46,7)	51 (53,1)	1,3 (0,64; 2,63)	0,475
19 (42,2)	36 (37,9)	1	
26 (57,8)	59 (62,1)	1,2 (0,58; 2,47)	0,625
23 (52,3)	48 (50)	1	
21 (47,7)	48 (50)	1,1 (0,54; 2,24)	0,803
/			
17 (37,8)	32 (33,3)	1	
13 (28,9)	35 (36,5)	1,43 (0,60;3,40)	0,418
15 (33,3)	29 (30,2)	1,03 (0,44; 2,42)	0,951
24 (72 5)	50 (60 4)		
31 (70,5)	59 (62,1)		
13 (29,5)	36 (37,9)	1,46 (0,67; 3,14)	0,339
$2(C, \overline{z})$		1	
3 (6,7)	60 (62,5)		-0.001
42 (93,3)	30 (37,5)	0,04 (0,01; 0,15)	<0,001
4 (0.0)	20 (20 0)	1	
4 (9,0)	29 (30,9)	$1 - 0.10 (0.06 \cdot 0.60)$	0.005
23 (01) 5 (12 2)	34 (30,2) 10 (10.6)	0,19(0,00,0,00) 0.29(0.06,1.22)	0,003
$\frac{3(12,2)}{7(17,1)}$	10 (10,0) 21 (22 3)	0,20(0,00,1,23) 0,41(0,11,1,60)	0,092
7 (17,1)	21 (22,3)	0,41 (0,11,1,00)	0,200
5 (11 4)	6 (6 3)	1	
7 (15 9)	13 (13 5)	$\frac{1}{1}$ 55 (0 34 · 6 94)	0 568
9 (20 5)	20 (20 8)	1 85 (0 45: 7 69)	0 396
11 (25)	41 (42 7)	$3 11 (0.8 \cdot 12 11)$	0 103
12(273)	16 (16 7)	$1 11 (0 27 \cdot 4 52)$	0.883
12 (27,3)	10 (10,17)	(0,2) / (,52)	0,000
18 (64.3)	54 (80.6)	1	
10 (35.7)	13 (19.4)	0.43 (0.16: 1.16)	0.095
			-,
35 (79,5)	75 (81,5)	1	0,784
9 (20,5)	17 (18,5)	0,88 (0,36; 2,17)	-
		- • • • • •	
18 (40,9)	33 (34,7)	1	
26 (59,1)	62 (65,3)	1,30 (0,62; 2,71)	0,483
	Progress in SS no 24 (53,3) 21 (46,7) 19 (42,2) 26 (57,8) 23 (52,3) 21 (47,7) 17 (37,8) 13 (28,9) 15 (33,3) 31 (70,5) 13 (29,5) 3 (6,7) 42 (93,3) 4 (9,8) 25 (61) 5 (12,2) 7 (17,1) 5 (11,4) 7 (15,9) 9 (20,5) 11 (25) 12 (27,3) 18 (64,3) 10 (35,7) 35 (79,5) 9 (20,5) 18 (40,9) 26 (59,1)	Progress in SSEnoyes24 (53,3)45 (46,9)21 (46,7)51 (53,1)19 (42,2)36 (37,9)26 (57,8)59 (62,1)23 (52,3)48 (50)21 (47,7)48 (50)17 (37,8)32 (33,3)13 (28,9)35 (36,5)15 (33,3)29 (30,2)31 (70,5)59 (62,1)13 (29,5)36 (37,9)3 (6,7)60 (62,5)42 (93,3)36 (37,5)4 (9,8)29 (30,9)25 (61)34 (36,2)5 (12,2)10 (10,6)7 (17,1)21 (22,3)5 (11,4)6 (6,3)7 (15,9)13 (13,5)9 (20,5)20 (20,8)11 (25)41 (42,7)12 (27,3)16 (16,7)18 (64,3)54 (80,6)10 (35,7)13 (19,4)35 (79,5)75 (81,5)9 (20,5)17 (18,5)18 (40,9)33 (34,7)26 (59,1)62 (65,3)	Progress in SSEnoyesOR (95 & Cl) $24 (53,3)$ $45 (46,9)$ 1 $21 (46,7)$ $51 (53,1)$ $1,3 (0,64; 2,63)$ $19 (42,2)$ $36 (37,9)$ 1 $26 (57,8)$ $59 (62,1)$ $1,2 (0,58; 2,47)$ $23 (52,3)$ $48 (50)$ 1 $21 (47,7)$ $48 (50)$ 1 $21 (47,7)$ $48 (50)$ 1 $17 (37,8)$ $32 (33,3)$ 1 $13 (28,9)$ $35 (36,5)$ $1,43 (0,60;3,40)$ $15 (33,3)$ $29 (30,2)$ $1,03 (0,44; 2,42)$ $31 (70,5)$ $59 (62,1)$ 1 $13 (29,5)$ $36 (37,9)$ $1,46 (0,67; 3,14)$ $3 (6,7)$ $60 (62,5)$ 1 $42 (93,3)$ $36 (37,5)$ $0,04 (0,01; 0,15)$ $4 (9,8)$ $29 (30,9)$ 1 $25 (61)$ $34 (36,2)$ $0,19 (0,06; 0,60)$ $5 (12,2)$ $10 (10,6)$ $0,28 (0,06; 1,23)$ $7 (17,1)$ $21 (22,3)$ $0,41 (0,11; 1,60)$ $5 (11,4)$ $6 (6,3)$ 1 $7 (15,9)$ $13 (13,5)$ $1,55 (0,34; 6,94)$ $9 (20,5)$ $20 (20,8)$ $1,85 (0,45; 7,69)$ $11 (25)$ $41 (42,7)$ $3,11 (0,8; 12,11)$ $12 (27,3)$ $16 (16,7)$ $1,11 (0,27; 4,52)$ $18 (64,3)$ $54 (80,6)$ 1 $10 (35,7)$ $13 (19,4)$ $0,43 (0,16; 1,16)$ $35 (79,5)$ $75 (81,5)$ 1 $9 (20,5)$ $75 (81,5)$ 1 $9 (20,5)$ $17 (18,5)$ $0,88 (0,36; 2,17)$ $18 (40,9)$ $33 (34,7)$

Table 2. Impact of various variables on the progress of SSE (univariate logistic regression).

self-examination. The analysis by individual factors (Table 2) emphasized two factors, but both in a negative direction: patients with stage 1 melanoma and patients who had undergone self-examination even prior to diagnosis had lower prospects for progress. When controlling for all the factors in the model (Figure 2), women had a higher likelihood of progress, while patients with stage 1 melanoma and those who self-examined prior to melanoma had lower prospects for progress.

DISCUSSION

After the diagnosis of cutaneous melanoma, patients became more attentive to preventive health behavior. It is obvious that patients understand SSB; there were no significant differences among patients from different institutions and when asked directly, 86.5% of patients confirmed they had changed their "sun-behavior". We can therefore assume that people know about SSB, but often do not take it seriously

while they are healthy. However, when confronted with the disease - a so called "teachable moment" in the model of health belief (14,15) – most of them recognize that previous exposure to the sun is very probably causally related to melanoma. Consequently, they understand the preventive power of adequate protection from the UV rays and adjust their behavior. As expected, Slovenian patients improved their preventive behavior after being diagnosed with cutaneous melanoma: 68% of them regularly applied creams with a high sun protection factor (SPF) and 91% of them moved to deep shade during the hours when sun is at its strongest. They wore sunglasses, hats, long sleeves and trousers significantly more often than before the diagnosis. The progress was statistically significant for all variables of SSB. Most of them also performed SSE: 89% checked visible skin parts once a month or more, and 58% checked areas that are harder to inspect. The above-mentioned trends correspond to data in the literature (4, 5, 11, 16-20), but the portion of Slovenian patients who performed



Figure 2. Adjusted odds ratios and 95% confidence interval comparing the progress in skin self-examination (SSE) and various variables in the model (multivariate logistic regression).

preventive behavior is substantially higher than in most of these studies. Manne and Lessin (5) investigated the behavior of patients with melanoma who were under regular medical supervision and found that approximately 50% of them were following SSB directions; 84% performed SSE occasionally (at least once a year), but only a third performed SSE of whole body at regular intervals. Mujumdar et al. (4), who were studying health behavior of patients with melanoma from the general population, reported that 17% of patients carried out regular check-ups of the whole body, but significantly more performed only partial examination (for example 60% checked the face and upper limbs). Only 23% they complied with SSB guidelines in general, however significantly more (56%) regularly used protection creams.

In comparison, the rate of SSB and SSE performance in our patients were very satisfactory. Assuming that there are no significant differences among medical centers, we can consider our results representative of Slovenia in general. The differences compared with data from other studies is probably due to our guidelines for monitoring patients with cutaneous melanoma (21). Patients are under life-long dermatological surveillance, twice a year for the first five years and once yearly afterwards. Patients with advanced disease are treated at the Institute of Oncology, their check-up intervals depend on the stage of the disease, and they are also regularly monitored by dermatologists. As counselling is part of the medical examination, repeated recommendations probably yield positive results. In the conclusions of a review article about skin cancer prevention practices (22), Nahar *et al.* actually proposed this kind of approach to patients.

Most of the articles in the literature describe the condition after the diagnosis of cutaneous melanoma, without comparison with health behavior before the disease. In our study, where participants before the diagnosis were actually their own control group, we can observe changes in their preventive attitudes and the factors which influence those changes. After being diagnosed with cutaneous melanoma, preventive health behavior significantly improved; progress in SSB was observed in 91.5% and progress in SSE in 68.1% of patients.

It is not clear why patients are significantly less active in SSE than in SSB. Time is most probably not the limiting factor. SSE of the whole body requires only 20-30 seconds monthly, and in individuals with hair an additional 3 minutes twice yearly for the examination of the scalp. Overall, therefore, substantially less time than one spends in a day on a beach for application of protective cream or changing swimming suits after bathing. It is more likely that people are (still) predominantly associating prevention of skin cancer with SSB. The reasons for this have not yet been determined. Since Berwick *et al.* in 1996 (23) published a study which found an association between SSE and reduced mortality due to cutaneous melanoma, public health recommendations have recommended both SSB and SSE. In 2016 Paddock *et al.* (24) confirmed that there was a probable link between SSE and reduced mortality of patients with cutaneous melanoma.

The results of logistic regression were interesting; we tried to assess the predictive determinants for progress, i.e. the factors whose carrier had significantly different odds ratios for SSE improvement. When tested for individual factors: gender, age, education, phototype, melanoma location and stage, the health institution where they were treated, and whether they were performing SSE before the diagnosis of cutaneous melanoma, only two connections were identified – both in the negative direction. Prospects for SSE progression were significantly reduced in patients with stage 1 melanoma and in those who had been performing SSE before melanoma diagnosis. In controlling for all factors in the model (multivariate logistic analysis), women had higher prospects for progression in SSE, but again the prospects were lower in patients with stage 1 melanoma and patients who were performing SSE before diagnosis. The prospects for improvement in SSE were also not influenced by a positive family history of cutaneous melanoma. In this group of patients, the odds for improvement were even slightly lower, however the difference was not statistically significant. We also checked patients with a higher level of stress – the odds ratio in this group was slightly higher, but again the difference was not statistically significant.

We do not have a satisfactory explanation for that. Regarding the reduction in the prospects for progress in patients who were performing SSE before the diagnosis of cutaneous melanoma, the most likely interpretations are contradictory. Either they think their SSE is already optimal and no amendment is necessary, or their self-confidence in the ability to recognize a malignant lesion is reduced, because they had performed SSE but did not detect melanoma. The fact that 44% of patients came for a medical checkup because they observed a changing mole allows us to consider both explanations.

When trying to understand why patients with stage 1 and patients who were performing SSE before had lower prospects for progress in SSE than patients with melanoma grade 0, 2, or 3, we performed additional analysis on their data. It became obvious that before the diagnosis patients with stage 1 melanoma employed significantly less help from others in SSE, and after being diagnosed with melanoma, they did

not change that practice, but the difference was no longer significant. Furthermore, among patients with stage 1 melanoma the share of those who perform SSE once monthly or more often was smaller. Taking into account that the above-mentioned data are difficult to explain and the fact that the group of patients with stage I was the biggest group (43.5% of all patients) regarding the stage of melanoma, we propose further analysis. In particular, it would be sensible to examine the differences according to elapsed time from the (last) melanoma. With melanoma, as well as with other cancers, it has been reported (25-27) that preventive behavior weakens fairly quickly with the time passage from the diagnosis. However, Oliveria et al (17) found "no significant difference between those diagnosed (with melanoma) more or less recently".

In general, research on the key determinants of health in Europe (28) has reported that higher education and better socio-economic status are linked to healthier life decisions. In this sense, the level of patient education stands out in Koerner *et al.* (11) – it is associated with more frequent SSE before diagnosis, more consistent SSE after melanoma and more frequent reporting that SSE was advised by medical personnel. However, a broader overview of the literature (5,29,30) reveals that data regarding SSE are unequivocal: demographic factors linked to better SSE are higher and lower education, lower and higher age, and there was either no differences regarding gender or women were more active in SSE.

According to the results of our study, it may be advisable to consider the approaches to counselling on skin cancer in general, not only in patients with melanoma. Although we can be satisfied with the progress made in preventive health behavior following the diagnosis of cutaneous melanoma, there is still room for improvement regarding SSE. According to data from the literature and from analyses of our patients (odds ratio of progress with regard to individual or adapted factors in the model (Table 2, Figure 2) there is no demographic characteristic or variable in disease and treatment on which the core of a potential new or modified preventive campaign could lean on. We propose an improvement in current health preventive messages that are spread to general population and to the patients. It is possible that professionals still - in personal communication and in media coverage – emphasize SSB more than SSE (31,32). On the other hand, perhaps patients have too little trust in recognizing the suspicious lesion themselves and the limiting factor is actually the patients' doubt in their ability to perform SSE adequately (33). This could be linked to intensive health awareness campaigns about skin cancer over recent years and not equally strong messaging about the patients' own abilities and selfefficacy. Witte and Allen (34) studied the relationship between "fear appeal" and "efficacy messages" within public health campaigns. They realized that a strong fear appeal and strong messages about one's own efficacy trigger the desired changes in health behavior, while weak self-efficacy messages with a strong fear appeal trigger highly defensive responses. Bearing this in mind, we can explain the difference in relation to SSB or SSE: nobody doubts that they are capable of applying a protective cream on the skin or relocate to the shade during hours of strong UV radiation; but being confident in one's ability to recognize a dangerous cancer is harder to achieve.

CONCLUSION

If we consider data from the period before the illness as data from the general population and compare it to the data from the literature, preventive health behavior in Slovenia is satisfactory in relation to melanoma. Moreover, it improves significantly after diagnosis of cutaneous melanoma. Patients substantially improved safe sun behavior and skin selfexamination; however, in the case of the latter there is room for improvement. We tried to identify factors with significant impact on improvement in skin selfexamination. Surprisingly, the only factor with positive influence on expected improvement was female gender.

Given our results, we believe that it is reasonable to improve SSE with further encouraging patients by increasing their feeling of self-efficacy. Considering the congruence between data from the literature and results of our study – that patients themselves or their family and friends spot most cutaneous melanomas – the expected benefit is important, not only on a personal level but also regarding the economic costs associated with the disease (35,36).

Study limitations: As the survey was performed in institutions where patients come for regular checkups, it cannot be ruled out that they, despite the assurance that the survey was completely anonymous, provided answers that were perceived as more acceptable and which may not represent their actual behavior.

Clinical implications: Melanoma survivors have increased risk of second primary melanoma and should be repeatedly counselled about the risk and the importance of preventive health behavior. In Slovenia, recommendations regarding SSB are wellknown and most people take them into account. However, information is probably not enough to encourage patients' regular and thorough SSE performance. We propose that medical professionals reinforce practical education regarding skin cancer and SSE, which would allow patients to feel self-confident in their observational skills.

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