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The Sun Protection Behavior Checklist for Targeted Counseling in Skin Cancer Patients

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Dear Editor,

As ultraviolet radiation is a major risk factor for skin cancer development, patients are advised to regularly practice sun protection. The risk of future skin cancers can be reduced by counseling patients on sun protection behaviors.

Questionnaires can provide clinicians with feedback on patient behaviors and quantify subjective outcomes, such as health-related quality of life and satisfaction with treatment and outcomes. The FACE-Q Skin Cancer Module is a validated patient-reported outcome measure (PROM) developed for patients undergoing surgical procedures for facial skin cancer.^{1–3} The module consists of rating scales and descriptive checklists.^{1,4} Due to the importance of sun protection for skin cancer patients, the authors felt inclusion of a sun protection behavior checklist was clinically relevant.

Questionnaires that rely on patient self-reported behaviors assessing sun protection exist,^{5,6} but patient acceptability, quality and consistency of responses vary based on the length of time to complete items.⁷ Lengthy questionnaires in clinical settings may be less useful. Therefore, our goal was to develop a simple and short checklist, in line with best practices,⁸ to assess behaviors related to sun protection of patients presenting for facial skin cancer

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surgery. Items related to outdoor activities with four response options were developed from patient interviews (n=15),² refined through expert opinion with clinicians in plastic surgery and dermatology, and pilot-tested in 5 patients.¹ Subsequent field-testing among 209 patients with skin cancer demonstrated that the items did not fit the Rasch psychometric model,¹ therefore we propose using the items as a checklist. The final checklist to assess behaviors related to sun protection of patients presenting for facial skin cancer surgery consists of 5 items (ranging 1= never to 4= always): generally avoid the sun (Q1); wear sunscreen (Q2); stay in the shade (Q3); wear a hat (Q4); and wear clothing in sunny weather (Q5).

Following development, we analyzed data from 531 patients (Table I) who completed the checklist at Memorial Sloan Kettering Cancer Center prior to dermatologic surgery for facial skin cancer between March 2017 and October 2018. Most patients reported some level of protection, with fewer than 3.4–10.5% answering “never” for the five items (Figure 1). The odds ratio with Bonferroni adjustment ($p < 0.01$ considered significant) was calculated for the individual items (Table II). Women were 1.9 times more likely than men to wear sunscreen ($p = 0.001$) and 0.5 times less likely to wear a hat ($p = 0.001$). Although not significant, women were 1.7 times more likely than men to avoid the sun ($p = 0.013$). Having a history of skin cancer was associated with a higher likelihood (OR 1.6–3.4) of reporting more sun protection behaviors (Q1 $p = 0.001$, Q2 $p = 0.023$, Q3–5 $p < 0.001$). Patients with more than three prior skin cancers were 3.1–3.4 times more likely to seek shade ($p < 0.001$), wear a hat ($p < 0.001$), and cover their skin ($p < 0.001$). Although smokers were less likely to avoid the sun and wear sunscreen than non-smokers, this difference was not significant ($p = 0.02$, $p = 0.04$). No significant difference was seen based on age and the type of skin cancer.

The Sun Protection Behavior checklist provides the clinician with a simple and quick tool to help identify areas of improvement in sun protection and can be used to identify patterns in individuals and groups. Results of the checklist are consistent with trends reported in the literature,^{9,10} suggesting its potential use as triage to assess sun protection behavior during a short office visit. Future research applying the checklist in clinic, at initial and subsequent visits, may give insight into changes in patients’ sun protection behavior. Its ease of use may allow for shorter intervals between assessments, leading to rapid, real-time changes in targeted counseling over time. The checklist can be used independently or in conjunction with the scales and checklists of the FACE-Q Skin Cancer module for a comprehensive assessment of patients presenting for dermatologic surgery. The checklist is available to license at www.qportfolio.org.

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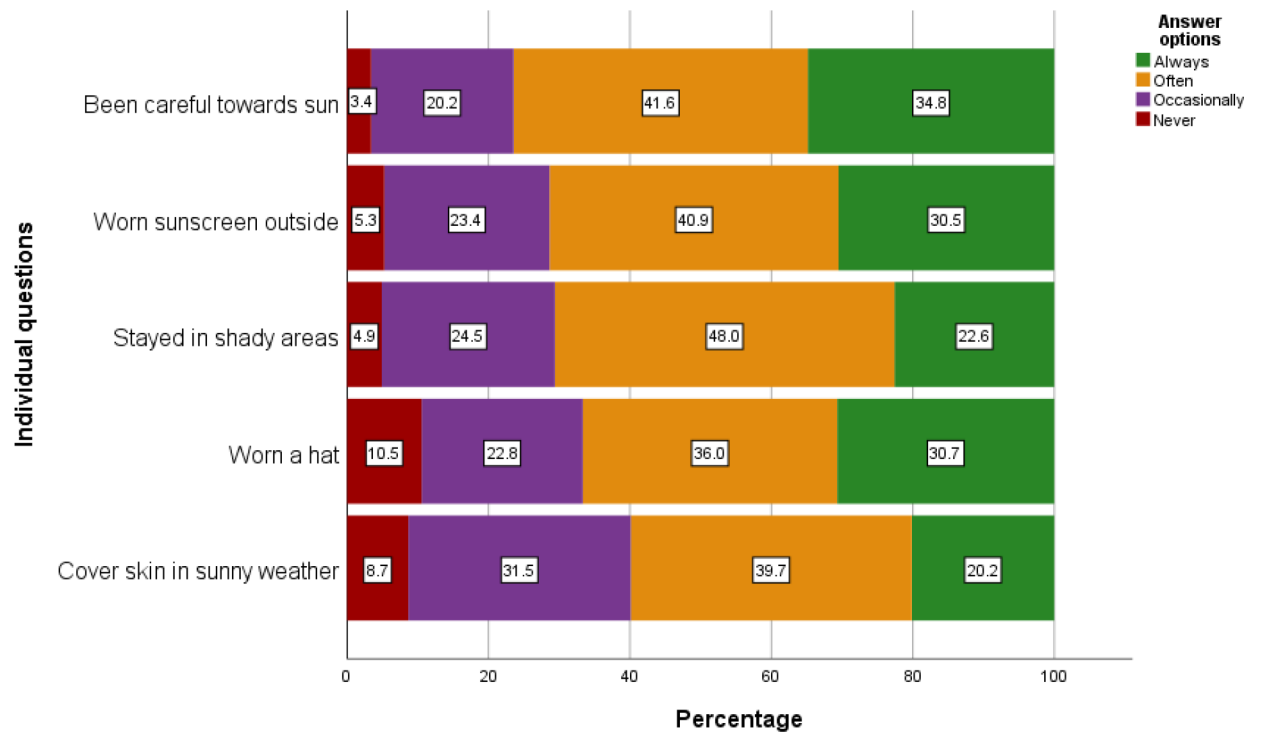


Figure 1.
Percentage of patient responses for the 5 items of the Sun Protection Behavior checklist

Table I.

Patient demographic and clinical factors of patients with facial skin cancer (N=531).

Clinical/Demographics	Characteristics	N (%)
Gender	Female	247 (47)
	Male	284 (53)
Age (years)	18–39	32 (6)
	40–64	210 (39)
	≥ 64	289 (54)
Marital Status	Married	160 (30)
	Single	371 (70)
Smoking history	Never	307 (58)
	Smoked	224 (42)
Skin cancer in history (N)	0	233 (44)
	1–3	210 (40)
	≥4	88 (17)
Diagnosis	Keratinocyte carcinoma	454 (86)
	Melanoma	68 (13)
	Other cutaneous malignancies	9 (2)

Table II.

Odds ratios for the individual sun protection items with gender and history of skin cancer (N=531).

Variable	N (%)	OR (95% CI)				
		Avoid sun	Sunscreen	Shade	Hat	Cover cloth
Gender						
Male	284 (53)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
Female	247 (47)	1.7 (1.1 –2.5) *	1.9 (1.3 –2.8) *	1.1 (0.8 – 1.6)	0.5 (0.4 –0.8) *	0.8 (0.5 – 1.1)
Skin Cancer History						
0	233 (44)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)	1.0 (referent)
1–3	210 (40)	2.1 (1.3 –3.3) *	1.6 (1.1–2.5)	2.5 (1.7–3.8) *	3.4 (2.3–5.2) *	2.2 (1.5–3.3) *
>3	88 (17)	2.0 (1.1–3.7)	1.0 (0.6–1.8)	3.1 (1.7–5.6) *	3.4 (1.9–6.0) *	3.3 (1.9–5.7) *

* Statistically significant with a p-value of <0.01

Abbreviation: OR, Odds Ratio