

ORIGINAL ARTICLES

Validation of a Spanish Questionnaire to Evaluate Habits, Attitudes, and Understanding of Exposure to Sunlight: “The Beach Questionnaire”*

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Abstract. *Background.* Questionnaires are the usual method for investigating sun-related behavior. However, such tools must be validated through evaluation of their measurement properties. The aim of the present study was to assess the validity and reliability of a Spanish questionnaire evaluating habits, attitudes, and understanding of exposure to sunlight.

Patients and Methods. In a cross-sectional study, the questionnaire was administered to a sample of 422 participants found on beaches. For the test-retest analysis, 70 hospital-based health professionals were interviewed on 2 separate occasions. The construct validity, internal consistency, and reproducibility were analyzed.

Results. Factorial analysis of the principal components confirmed the construct validity with commonalities and factor saturations >0.50, and revealed multiple dimensions with Cronbach α values > 0.70. The items on habits and understanding showed intraclass correlation and δ coefficient values > 0.70, but those on attitude had lower stability values (0.50–0.80).

Conclusions. This is the first Spanish questionnaire with demonstrated validity and reliability for evaluating habits, attitudes, and understanding of exposure to sunlight. It will be a useful instrument for future epidemiologic studies and research into the prevention of skin cancer in Spain.

Key words: questionnaires, skin cancer prevention, solar protection, behavior, attitudes.

VALIDACIÓN DE UN CUESTIONARIO EN ESPAÑOL SOBRE COMPORTAMIENTOS, ACTITUDES Y CONOCIMIENTOS RELACIONADOS CON LA EXPOSICIÓN SOLAR: «CUESTIONARIO A PIE DE PLAYA»

Resumen *Introducción.* Los cuestionarios son el método habitual de investigación de las conductas relacionadas con la exposición solar. Sin embargo, para que un instrumento sea válido debe acreditar sus propiedades de medición. El objetivo del presente trabajo fue evaluar la validez y la fiabilidad de un cuestionario en español sobre comportamientos, actitudes y conocimientos relacionados con la exposición solar en la playa.

Pacientes y método. Se realizó un estudio de corte transversal administrándose el cuestionario a una muestra de 422 participantes a pie de playa. Para la prueba del test-retest se encuestó a 70 participantes del medio hospitalario en dos ocasiones diferentes. Se analizaron la validez, la consistencia interna y la reproducibilidad de los ítems del instrumento.

Resultados. El análisis factorial de los componentes principales mostró valores de comunalidades y saturaciones factoriales > 0,50, y reveló la presencia de múltiples dimensiones que presentaron valores de coeficiente alfa de Cronbach > 0,70. Los ítems de comportamientos y conocimientos evidenciaron coeficientes de correlación intraclass y delta > 0,70. Los ítems del apartado de actitudes mostraron valores moderados de estabilidad (0,50–0,80).

Conclusiones. Se presenta el primer cuestionario sobre comportamientos, actitudes y conocimientos relacionados con la exposición solar, elaborado en español, con garantías de validez y fiabilidad. Este instrumento constituirá una herramienta de utilidad en la investigación epidemiológica y del ámbito de la prevención primaria del cáncer de piel en España.

Palabras clave: cuestionarios, prevención del cáncer de piel, protección solar, comportamientos, actitudes.

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Introduction

Questionnaires, the established means for gathering information on health-related behaviors, are indispensable for conducting population surveys or evaluating the results of educational interventions.¹ Before a questionnaire can be used, however, its measurement properties (validity, reliability, sensitivity to change) must be demonstrated.² The International Epidemiological Association has underlined the need to improve the quality of questionnaires administered in research into primary prevention measures, given that they provide us with information needed for health policy planning.³ No standardized questionnaire for studying behaviors related to sun exposure is currently available for use in relation to skin cancer, however. Quite the contrary, the questionnaires that have been used in population studies or interventions reported in the literature to date have varied greatly in design and content and have not been previously validated.⁴⁻²⁰ Sunbathing on the beach is one of the behaviors that places an individual at risk for skin cancer in Spain. Our aim was to design an instrument that would be valid and reliable for learning about sunbathing behaviors on Spanish beaches.

Material and Methods

Study Population and Design

The study was carried out in the province of Malaga, in the southern part of Spain, specifically in the western portion of the coast near Malaga (Costa del Sol), a residential area stretching from Benalmádena to Torremolinos that receives a large number of tourists.²¹ Participants were recruited on the beach at random. Children under 14 years of age and persons who did not speak or understand Spanish were excluded. The cross-sectional study had 3 phases:

1. Phase I (pilot study): 70 beach interviews in June
2. Phase II (field work): 422 new beach interviews in July and August
3. Phase III (test-retest): responses from 70 randomly selected health care workers from Hospital Costa del Sol who were surveyed on 2 separate occasions in September

Questionnaire

A group of experts drafted a new questionnaire taking as their starting point the instruments used to study sun-related behaviors already in the literature published in

English^{4-15,22-24} and Spanish.¹⁶⁻¹⁸ The new questionnaire contained the following sections:

1. Personal information (7 items): sex, age, marital status, dependents, country of origin, resident or tourist status, and educational level
2. Skin color (1 item): color of skin not exposed to the sun (choice of 4 answers)
3. Skin phototype (1 item): Fitzpatrick skin type²⁵ (choice of 4 answers)
4. Sunbathing behaviors at the beach (3 items): behaviors in recent summers (number of days exposed, number of hours per day [choice of 5 answers], and sun exposure hours in the middle of the day [choice of 5 answers])
5. Sunburns from beach exposure (1 item): the number of sunburns during the previous summer, with a choice of 3 answers (none, 1-2, 3 or more). A sunburn was defined as the presence of redness and pain after exposure to the sun.²⁵
6. Sun protection behaviors at the beach (6 items): 6 protective behaviors recommended by the World Health Organization (WHO)²⁶ were explored. These were seeking shade, wearing sunglasses, using a sun hat or cap, wearing long sleeves or pants, avoiding the sun in the middle of the day (between 11:00 A.M. and 5 P.M.), and applying a sunscreen (sun protection factor ≥ 15). Responses were given in Likert categories (1, never; 2, hardly ever; 3, sometimes; 4, usually; 5, always).
7. Attitudes toward sun exposure (18 items): attitudes were defined as general feelings that are consistently positive or negative.²⁷ This section explored attitudes toward sun exposure and protection in 3 dimensions (health, appearance, and pleasure/leisure time) that were established a priori. Responses were given on a Likert scale from 1 (strongly disagree) to 5 (strongly agree).
8. Knowledge related to sun exposure (7 items): This section explored 7 basic concepts about the sun and skin cancer. Items were to be marked true or false.

In the pilot phase, the comprehensibility of the items was tested and the phrasing revised.

Validation Study

In the initial phase a group of experts in dermatology, psychology, and epidemiology evaluated the content validity of the drafted questionnaire. The construct validity (the ability of various items to measure the concept they purport to measure) and internal consistency (the homogeneity of items measuring the same concept) were assessed for the set of questions on sun protection behaviors and attitudes toward sun exposure. Items that contributed less to the internal consistency of the instrument were

Table 1. Descriptive Statistics for the Principal Study Population

		Frequency	Percentage
Sex	Male	205	48.6
	Female	217	51.4
Marital status	Single	214	50.7
	Married/partnered	176	41.7
	Widowed	14	3.3
	Separated or divorced	18	4.3
Educational level	No formal schooling	12	2.8
	Primary school	97	23.0
	Secondary school	169	40.0
	Higher education	144	34.1
Skin phototype	Type I	30	7.1
	Type II	94	22.3
	Type III	135	32.0
	Type IV	163	38.6
Beach sunbathing days	None	2	0.5
	1-5	42	10.0
	6-15	141	33.4
	16-30	96	22.7
	> 30	141	33.4
Beach hours	< 30 min	11	2.6
	30 min-1 h	24	5.7
	1-3 h	192	45.5
	> 3 h	195	46.2
Midday sunbathing hours	No sunbathing activity	30	7.1
	< 1 h	50	11.8
	1-2 h	153	36.3
	2-4 h	120	28.4
	4-6 h	69	16.4
Sunburns	None	239	56.7
	1-2	131	31.0
	≥ 3	52	12.3
Knowledge (correct responses)	0-3	44	10.4
	4-5	122	28.9
	6-7	256	60.7

eliminated after statistical analysis, and the dimensions were redefined. Reproducibility (consistent item behavior when the instrument is reused under the same conditions) was assessed by administering the questionnaire to the same group of persons on 2 different occasions.

Statistical Analysis

Descriptive statistics were compiled for demographic characteristics and skin cancer risk factors for the main study population of participants who answered the Spanish questionnaire (n=422) undergoing validation. Responses to all items were tabulated to show frequency of choices. Before exploring factors in the sections corresponding to sun protection behaviors and sun exposure attitudes, we analyzed item-to-scale correlations. Items with a Pearson correlation coefficient over 0.30 were eligible for factor analysis. Concept validity was evaluated by exploring for factors using principal component analysis with varimax rotation. The results of component analysis were checked with the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and with the Bartlett test of sphericity. Items with communality and saturation scores >0.50 were grouped. The internal consistency of items grouped into components (or factors) was explored with the Cronbach α coefficient, considering values over 0.70 to indicate good consistency.²⁸

The stability of questionnaire items was measured using a test-retest procedure. Assessment was by the percentage of exact response agreement and the intraclass correlation coefficient (ICC) for all questionnaire sections except knowledge, for which the δ statistic was calculated.

Results

Ninety-eight percent of respondents completed the questionnaire. Table 1 shows the descriptive statistics for the main validation sample of 422 respondents, in which the mean (SD) age was 33.9 (13.6) years. Six or 7 knowledge items were answered correctly by 60.7% of the respondents. Table 2 shows response frequencies and item-to-scale correlations for the sections on sun protection behaviors and sun exposure attitudes. Three items on attitudes (items 11, 12, and 16) had correlation coefficients less than 0.30 and were excluded from component analysis.

Table 3 shows the results of factor analysis and internal consistency assessment for items on sun protection behaviors. Six items met the criteria for entering component analysis (KMO=0.75 and $P<.001$ on the Bartlett test of sphericity). Communality estimates ranged from 0.50 to 0.60. The components identified as factors

Table 2. Response Frequencies and Item-to-Scale Correlations for the Questionnaire Sections on Sun Protection Behaviors and Attitudes Toward Sun Exposure

	Sun Protection Behaviors					Frequency of Response, %					Item-to-Scale Correlation	
	Never	Hardly Ever	Sometimes	Usually	Always	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Correlation Coefficient	Correlation Coefficient After Item Removal
Seeking shade	25.6	15.9	27.3	17.1	14.2						0.700	
Wearing sunglasses	41.7	11.4	14.7	16.6	15.6						0.571	
Using a sun hat or cap	47.6	10.9	18.0	12.3	11.1						0.646	
Wearing long sleeves or pants	88.2	5.5	4.0	1.9	0.5						0.395	
Avoiding the sun between 11:00 a.m. and 5:00 p.m.	38.2	25.6	16.4	11.4	8.5						0.644	
Applying a sunscreen, protection factor \geq 15	36.7	8.8	14.2	17.8	22.5						0.704	
	<i>Attitudes</i>											
01 When I have a tan, clothes look better on me.	2.8	4.7	17.1	43.6	31.8						0.488	0.522
02 Sunbathing helps prevent health problems.	3.3	14.22	5.8	46.2	10.4						0.359	0.403
03 I like how the sun feels on my skin when I'm lying on the beach.	3.6	16.1	30.1	37.7	12.6						0.650	0.66
04 It's worth using sunscreens to avoid problems in the future.	1.9	4.5	16.1	40.5	37.0						0.447	0.41
05 Sunscreens don't feel good on my skin.	17.3	31.0	25.4	20.4	5.9						0.547	0.555
06 It's worth taking the trouble to use sunscreens even if I don't get a tan.	2.4	25.6	17.3	32.7	22.0						0.524	0.479
07 People with tans are more attractive.	2.4	6.2	30.1	41.2	20.1						0.608	0.646
08 Sunbathing is healthy for my body.	2.4	8.1	23.9	54.3	11.4						0.418	0.465
09 Sunbathing relaxes me.	3.6	10.7	21.1	51.2	13.5						0.504	0.531
10 To avoid cancer, I shouldn't sunbathe in the middle of the day.	4.7	7.3	23.9	34.6	29.4						0.347	0.32
11 I don't feel comfortable in long sleeves and long pants.	2.1	3.1	10.4	35.3	49.1						0.270	
12 It's worth taking the trouble to avoid the sun, so my skin won't get wrinkled.	1.7	13.7	23.0	45.7	15.9						0.256	
13 A tan makes a person look younger and more relaxed.	2.8	10.7	29.6	45.5	11.4						0.552	0.592
14 Sunbathing makes me feel better.	2.6	9.2	28.2	47.2	12.8						0.590	
15 I like sunbathing.	1.7	7.8	16.4	55.7	18.5						0.627	0.661
16 Protecting my skin's a healthy thing to do.	1.9	5.2	25.8	48.3	18.7						0.085	
17 I like to be in the shade when I'm on the beach.	3.8	22.5	28.2	29.9	15.6						0.401	0.345
18 High protection factor sunscreens don't look good.	15.2	30.6	30.1	18.0	6.2						0.515	0.528

had loadings over 0.60 and explained more than 55% of the variance. Internal consistency was demonstrated by Cronbach α coefficients of 0.68 for the first factor (avoiding the midday sun, using a beach umbrella and a sunscreen) and 0.45 for the second (wearing sunglasses, a sun hat, and long pants or sleeves).

Fifteen items related to sun exposure attitudes met the criteria to enter component analysis (KMO=0.82 and $P < .001$ on the Bartlett test of sphericity) (Table 4). Community values were >0.50 with the exception of item 10, which was eliminated. Principal component analysis identified 4 factors that explained 64% of the variance with loadings >0.50 for all. The Cronbach α coefficients for these factors were approximately 0.70 (Table 4).

The test-retest procedure (Table 5) resulted in ICC values over 0.70 for sunbathing behaviors, sunburns, and sun protection behaviors. Only the protection measure of wearing long sleeves or pants had a lower ICC of 0.56, although the percentage of response agreement was higher for this item at 86.2%. ICC values ranged from 0.54 to 0.85 in the section on attitudes, with the exception of item 4 (ICC=0.12; percentage of exact agreement, 61.5%). In the block of items testing knowledge (true/false responses), the percentage of agreement exceeded 80%.

Discussion

We developed a Spanish questionnaire on behaviors, attitudes, and knowledge related to sunbathing ("The Beach Questionnaire," Appendix).

A team of experts drafted the instrument, applying rigorous design criteria.^{1,2} The results of this validation study have demonstrated the measurement properties of the instrument, making this the first reliable, valid Spanish-language tool for studying sunbathing behaviors.

After component analysis, 4 items that contributed little to validity were eliminated from the section on attitudes toward sun exposure. This analysis also showed that the section on attitudes has 4 underlying factors (related to the sun, tanning, sun protection behaviors, and sunscreens) and that the internal consistency of these factors is high. The section on sun protection behaviors proved to have 2 dimensions not previously described. These dimensions distinguish behaviors that are directly related to the sun (avoiding the midday sun, using a beach umbrella and a sunscreen) from certain cultural concepts related to fashion (clothing, sunglasses, sun hats).

The sections on sunbathing behaviors, sunburns, sun protection behaviors, and sun-related knowledge displayed high degrees of reproducibility in the test-retest procedure. The group of items on attitudes toward sun exposure, however, was only moderately stable. Similar findings were reported by Bränström et al²⁹ for a sunbathing behavior

questionnaire in Sweden. They proposed that an index be created to capture feelings, beliefs, and perceptions.

The Beach Questionnaire facilitates the study of sunbathing in an integrated way. The items cover not only sunbathing and sun protection behaviors, as is the case for an instrument recently drafted by the group of Glanz et al,³⁰ but also cognitive and emotional aspects of behavior. The questionnaire we developed also explores 6 behaviors recommended by the WHO to assure adequate protection from the sun's rays.²⁶ Although sunscreen application is the behavior most often mentioned in the literature,⁴ these products do not always afford adequate protection and may be associated with higher risk of sunburn if used by an individual to prolong exposure time.^{14,15,23} Attitudes also play a key role in the development of sunbathing behaviors. A positive attitude toward the sun and tanning is associated with overexposure and is an obstacle to overcome in adopting healthy practices.²²⁻²⁴ The questionnaire presented here allows the emotional component of behavior to be investigated in terms of 4 dimensions of attitude (toward the sun, tanning, sun protection, and sunscreens).

Applications

The Beach Questionnaire has important potential applications in epidemiology and in the primary prevention of skin cancer.

This instrument will facilitate general population studies on sun exposure similar to those performed in the United States, other European countries, and Australia.⁴ Such surveys provide highly useful information for guiding the development of educational campaigns. Exploring attitudes can be particularly useful in the design of motivational interventions affecting sunbathing behaviors.³¹ Likewise, if this questionnaire's sensitivity to change is confirmed, it will be possible to use it to evaluate educational campaigns like those already being implemented in this country.^{19,20}

Limitations

All questionnaire-based surveys of sunbathing behaviors explore only reported practices and they share the limitation that respondents tend to give socially acceptable answers. Direct observation of behavior, on the other hand, involves evident practical and ethical limitations.²²

Although the main population sample for our study was recruited on the beach, the test-retest procedure was carried out in the hospital because of the difficulty of finding beachgoers to respond twice on location.

Table 3. Matrix of Rotated Component and Internal Consistency Analyses for the Section on Sun Protection Behaviors

	Communality	Percentage of Variance	Components		Cronbach α	Cronbach α on Elimination of the Item
			1	2		
Seeking shade	0.59	38.64%	0.74	0.21	0.68	0.59
Avoiding the sun between 11:00 A.M. and 5:00 P.M.	0.57		0.74	0.12		0.60
Using a sunscreen, protection factor ≥ 15	0.66		0.81	0.08		0.56
Wearing sunglasses	0.55	17.02%	0.09	0.74	0.45	0.29
Wearing a sun hat or cap	0.48		0.35	0.60		0.25
Wearing long sleeves or pants	0.49		0.05	0.70		0.44

Table 4. Matrix of Rotated Components and Analyses of Internal Consistency for the Section on Attitudes Toward Sun Exposure

	Communality	Percentage of Variance	Components				Cronbach α	Cronbach α on Elimination of the Item
			1	2	3	4		
Sunbathing helps prevent health problems.	0.549	31.441%	0.724	0.027	-0.136	0.073	0.822	0.812
I like how the sun feels on my skin when I'm lying on the beach.	0.528		0.458	0.524	0.196	0.07	0.804	0.804
Sunbathing is healthy for my body.	0.692		0.823	0.082	-0.085	0.029	0.789	0.789
Sunbathing relaxes me.	0.628		0.771	0.164	0.07		0.785	0.785
Sunbathing makes me feel better.	0.649		0.657	0.449	0.02	0.121	0.776	0.776
I like sunbathing.	0.637		0.509	0.52	0.327	-0.039	0.792	0.792
When I have a tan, clothes look better on me.	0.624	15.338%	-0.003	0.784	0.023	0.094	0.745	0.734
Tanned people look more attractive.	0.643		0.136	0.741	0.063	0.268	0.608	0.608
A tan makes a person look younger and more relaxed.	0.635		0.277	0.726	-0.081	0.154	0.636	0.636
It's worth taking the trouble to use sunscreens to avoid ...	0.645	9.533%	-0.025	-0.105	0.626	0.491	0.670	0.587
It's worth taking the trouble to use sunscreens even if I don't get a tan.	0.666		-0.076	0.113	0.759	0.266	0.434	0.434
I'd rather stay in the shade than in the sun at the beach.	0.700		0.012	0.058	0.819	-0.159	0.673	0.673
Sunscreens don't feel good on my skin.	0.711	7.710%	0.126	0.168	0.112	0.809	0.684	-
I don't like high protection factor sunscreens because they don't look good.	0.657			0.05	0.279	0.038	0.758	-

Table 5. Percentage of Exact Response Agreement and the Intraclass Correlation Coefficient

<i>Questionnaire Items Studied</i>		<i>Exact Agreement, %</i>	<i>ICC</i>	<i>95% CI</i>	
Sunbathing behaviors during the last 2 summers	Average total sunbathing hours	66.7	0.90	0.84	0.94
	Daily sunbathing hours	59.1	0.70	0.51	0.82
	Midday sun exposure	45.5	0.71	0.52	0.82
Incidence of sunburns	Sunburns last summer	80.3	0.83	0.72	0.89
Sun protection behaviors	Seeking shade	50.8	0.75	0.59	0.85
	Wearing sunglasses	59.1	0.89	0.82	0.93
	Wearing a sun hat or cap	56.9	0.88	0.81	0.93
	Wearing long sleeves or pants	86.2	0.56	0.27	0.73
	Avoiding the sun between 11:00 A.M. and 5:00 P.M.	44.6	0.82	0.71	0.89
	Using a sunscreen, protection factor ≥ 15	49.2	0.86	0.77	0.91
Attitudes	Attitude 1	65.2	0.61	0.37	0.76
	Attitude 2	54.5	0.54	0.26	0.72
	Attitude 3	47.0	0.64	0.41	0.78
	Attitude 4	61.5	0.12	-0.28	0.52
	Attitude 5	48.5	0.66	0.45	0.79
	Attitude 6	51.5	0.66	0.45	0.79
	Attitude 7	51.5	0.73	0.56	0.83
	Attitude 8	55.4	0.65	0.43	0.79
	Attitude 9	47.0	0.71	0.53	0.82
	Attitude 13	60.6	0.80	0.67	0.88
	Attitude 14	59.1	0.70	0.50	0.81
	Attitude 15	59.4	0.83	0.73	0.90
	Attitude 17	60.6	0.85	0.75	0.91
	Attitude 18	54.5	0.68	0.48	0.80
		<i>Exact Agreement, %</i>	δ <i>Statistic</i>	<i>95% CI</i>	
Knowledge related to sun exposure	Item 1	84.8	0.70	0.53	0.87
	Item 2	97.0	0.90	0.80	1.00
	Item 3	100.0	1.00	1.00	1.00
	Item 4	81.5	0.61	0.43	0.80
	Item 5	86.4	0.70	0.53	0.86
	Item 6	85.5	0.70	0.52	0.87
	Item 7	92.4	0.82	0.69	0.95

Abbreviations: CI, confidence interval; ICC, intraclass correlation coefficient.

The high frequency of correct answers our study population gave for items in the knowledge section indicates that this instrument has limited ability to discriminate levels of understanding. Although knowledge has scant influence on sunbathing behaviors,^{4,5} should a researcher need to discriminate such levels it would be necessary to construct a specific questionnaire for that purpose.

The Beach Questionnaire was validated in persons over the age of 14 years and was developed in the context of the southern coastal area in Spain (the Costa del Sol). The use of this instrument in younger subjects or in other cultural settings would require adaptation and reassessment of its measurement properties.

In conclusion, we have developed the first reliable, validated Spanish questionnaire on behaviors, attitudes, and knowledge related to sun exposure. This instrument will be useful for epidemiologic research in the area of primary skin cancer prevention in Spain.

Conflict of Interest

The authors declare no conflicts of interest.

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Appendix 1. Questionnaire on Behaviors, Attitudes and Knowledge Related to Sun Exposure: "The Beach Questionnaire"

Datos demográficos			
1. Sex	Male: <input type="checkbox"/>	Female: <input type="checkbox"/>	
2. Age: _____			
3. Marital status:			
Single	<input type="checkbox"/>		
Married/partnered	<input type="checkbox"/>		
Widowed	<input type="checkbox"/>		
No formal schooling	<input type="checkbox"/>		
4. Do you have children under the age of 12?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
5. Country of origin: _____ (indicate the country)			
		6. Time of residence on the Costa del Sol:	
		7. Usual place of residence (all year)	<input type="checkbox"/>
		8. Temporary residence (2-12 months)	<input type="checkbox"/>
		9. Tourist (0-2 months)	<input type="checkbox"/>
		10. Educational level:	
		Separated or divorced	<input type="checkbox"/>
		Primary education (primary, elementary, or minimum mandatory secondary education)	<input type="checkbox"/>
		Secondary schooling (through upper levels of academic secondary school or vocational training)	<input type="checkbox"/>
		Estudios superiores (diplomatura, licenciatura, máster)	<input type="checkbox"/>
		Higher education (2- or 3-year diploma courses, university or postgraduate degree)	<input type="checkbox"/>
Skin color			
Which word or phrase describes your skin color?		Very fair	<input type="checkbox"/>
		Olive	<input type="checkbox"/>
		Fair	<input type="checkbox"/>
		Dark	<input type="checkbox"/>
Skin phototype			
Mark the statement that best describes how your skin reacts the first time you sunbathe for an hour in the summer in the middle of the day. (Sunburn = reddened skin)			
I have a painful sunburn the next day and I still won't be tanned after a week has gone by.			<input type="checkbox"/>
I have a painful sunburn the next day and a light tan after a week.			<input type="checkbox"/>
I have a slight sunburn the next day and a tan after a week.			<input type="checkbox"/>
I won't have a sunburn the next day and I'll have a good tan after a week.			<input type="checkbox"/>
Sunbathing behaviors			
Mark a response with an X, based on your practices during the last 2 summers.			
1. How many days, on average, did you sunbathe at the beach?	None	<input type="checkbox"/>	
	1-5 days	<input type="checkbox"/>	
	6-15 days	<input type="checkbox"/>	
	16-30 days	<input type="checkbox"/>	
	More than 30 days	<input type="checkbox"/>	
2. How many hours per day do you sunbathe when you're at the beach?	Less than 30 minutes	<input type="checkbox"/>	
	From 30 minutes to 1 hour	<input type="checkbox"/>	
	From 1 to 3 hours	<input type="checkbox"/>	
	More than 3 hours	<input type="checkbox"/>	
3. How many hours per day do you sunbathe between the hours of 11:00 a.m. and 5:00 p.m.	None	<input type="checkbox"/>	
	Less than 1 hour	<input type="checkbox"/>	
	From 1 to 2 hours	<input type="checkbox"/>	
	From 2 to 4 hours	<input type="checkbox"/>	
	From 4 to 6 hours	<input type="checkbox"/>	
Sunburns			
How many sunburns (with reddened, painful skin) did you have last summer? (Mark one answer with an X.):		None	<input type="checkbox"/>
		1-2	<input type="checkbox"/>
		3-5	<input type="checkbox"/>
		6-10	<input type="checkbox"/>
		More than 10	<input type="checkbox"/>

(Continues on next page.)

Appendix 1. Questionnaire on Behaviors, Attitudes and Knowledge Related to Sun Exposure: "The Beach Questionnaire" (Continued)

<i>Sun protection behaviors</i>					
<i>At the beach, do you ___? (Mark a response with an X.)</i>	<i>Always</i>	<i>Usually</i>	<i>Sometimes</i>	<i>Hardly ever</i>	<i>Never</i>
Use a beach umbrella	<input type="checkbox"/>				
Wear sunglasses	<input type="checkbox"/>				
Use a sun hat/cap	<input type="checkbox"/>				
Wear long sleeves or long pants	<input type="checkbox"/>				
Stay out of the midday sun (11:00 a.m. to 5:00 p.m.)	<input type="checkbox"/>				
Apply a sunscreen, protection factor of 15 or higher	<input type="checkbox"/>				

<i>Attitudes</i>					
Mark an X to indicate your degree of agreement with each statement below:					
	<i>Strongly agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly disagree</i>
When I have a tan, clothes look better on me.	<input type="checkbox"/>				
Sunbathing helps prevent health problems.	<input type="checkbox"/>				
I like how the sun feels on my skin when I'm lying on the beach.	<input type="checkbox"/>				
It's worth taking the trouble to use sunscreens when I'm sunbathing on the beach—to avoid problems in the future.	<input type="checkbox"/>				
Sunscreens don't feel good on my skin when I'm lying on the beach.	<input type="checkbox"/>				
It's worth taking the trouble to use sunscreens when I'm sunbathing on the beach—even if I don't get a tan.	<input type="checkbox"/>				
Tanned people look more attractive on the beach.	<input type="checkbox"/>				
Sunbathing at the beach is healthy for my body.	<input type="checkbox"/>				
Sunbathing at the beach relaxes me.	<input type="checkbox"/>				
I look younger and more relaxed at the beach if I have a tan.	<input type="checkbox"/>				
Sunbathing at the beach makes me feel better me up.	<input type="checkbox"/>				
I like sunbathing at the beach.	<input type="checkbox"/>				
I like to stay in the shade when I'm at the beach.	<input type="checkbox"/>				
I don't like high protection factor sunscreens because they don't look good when I'm sunbathing.	<input type="checkbox"/>				

<i>Knowledge about sun exposure</i>		
Mark true or false with an X after each statement.		
	<i>True</i>	<i>False</i>
Sunscreens prevent skin aging caused by the sun's rays.	<input type="checkbox"/>	<input type="checkbox"/>
Sun exposure is the main cause of skin cancer.	<input type="checkbox"/>	<input type="checkbox"/>
The sun can cause spots on the skin.	<input type="checkbox"/>	<input type="checkbox"/>
If I use a total-protection sunscreen, I can sunbathe without risk.	<input type="checkbox"/>	<input type="checkbox"/>
Avoiding the sun's rays in the middle of the day (11:00 a.m. to 17:00 p.m.) is the best way to protect the skin.	<input type="checkbox"/>	<input type="checkbox"/>
Avoiding sun exposure when you're young (before 18 years of age) reduces the risk of developing skin cancer by 80%.	<input type="checkbox"/>	<input type="checkbox"/>
Once my skin is tanned, I don't need to use a sunscreen.	<input type="checkbox"/>	<input type="checkbox"/>