

Cross-Sectional Validation of a Quality of Life Questionnaire in Spanish for Patients Allergic to Hymenoptera Venom

Armisen M¹, Guspi R², Alfaya T³, Cruz S⁴, Fernández S⁵, Domínguez-Noche C⁶, Alonso A⁷, Dalmau G⁸, Marqués L⁹, Vega A⁷

¹Hospital de Conxo, Santiago de Compostela, A Coruña, Spain

²Hospital Verge de la Cinta, Tortosa, Spain and Institut de Investigació Sanitaria Pere Virgili, Reus, Tarragona, Spain

³Hospital General Universitario de Ciudad Real, Ciudad Real, Spain

⁴Hospital Torrecárdenas, Almería, Spain

⁵Hospital Carlos Haya, Málaga, Spain

⁶Hospital Virgen del Puerto, Plasencia, Cáceres, Spain

⁷Gerencia de Atención Integrada de Guadalajara, Guadalajara, Spain

⁸Hospital Joan XXIII, Tarragona, Spain

⁹Hospital Santa María - Universitario Arnau de Vilanova, Lleida, Spain

■ Abstract

Introduction and Objectives: The first quality of life questionnaire for *Vespa*-allergic patients (Vespid Allergy Quality of Life Questionnaire [VQLQ]) was developed in 2002. Our objective was to perform the cross-sectional validation of the Spanish version of this questionnaire.

Patients and Methods: Using the original English-language version of the VQLQ as a starting point, the Spanish translation and cultural adaptation were performed and the first Spanish version was backtranslated into English and discussed with the authors of the original version. The result was the Spanish Health-related Quality of Life Questionnaire for Hymenoptera Venom-Allergic Patients (HRQLHA). Cross-sectional validation was carried out in a multicenter study using a test-retest design. Patients over the age of 14 diagnosed with systemic allergic reaction to venom from *Apis*, *Vespa*, or *Polistes* species were included. The test-retest reliability, external validity, and internal consistency of the questionnaire were measured.

Results: The sample comprised 116 patients. The mean HRQLHA score was 3.48. Test-retest reliability showed an intraclass correlation coefficient of 0.85. HRQLHA showed a positive correlation (0.5) with an external questionnaire, thus demonstrating its external validity. Analysis of the internal consistency of the HRQLHA yielded a Cronbach α of 0.95, which can be considered to be excellent.

Conclusions: Statistical analysis revealed the high test-retest reliability, internal consistency, and external validity of the HRQLHA.

The HRQLHA is the first validated questionnaire to include patients allergic to *Polistes* species, which is common in our area. Our findings show that the questionnaire is also valid for these patients.

Key words: Quality of life questionnaire. Cross-sectional validation. Hymenoptera venom allergy. *Polistes*.

■ Resumen

Introducción: En 2002 se desarrolló el primer cuestionario de calidad de vida para alérgicos a veneno de *Vespa* (VQLQ). El objetivo de este trabajo es desarrollar y validar una versión en español de este cuestionario.

Métodos y Pacientes: Partiendo del VQLQ en inglés se realizó la traducción al español y adaptación cultural del cuestionario con una posterior retraducción consensuada con los autores de la versión original. Así se desarrolló el cuestionario de calidad de vida en español para pacientes alérgicos a veneno de himenópteros (HRQLHA). La validación transversal se realizó mediante un estudio multicéntrico, con diseño test-retest en el que se incluyeron pacientes mayores de 14 años con reacción sistémica por alergia a veneno de *Apis*, *Vespa* o *Polistes*. Se analizó la fiabilidad test-retest, la validez externa y la consistencia interna del cuestionario.

Resultados: Se incluyeron 116 pacientes alérgicos a venenos de *Apis*, *Vespa* o *Polistes*. La puntuación media del HRQLHA fue 3.48. El estudio de fiabilidad test-retest mostró un coeficiente de correlación intraclass de 0.85. El HRQLHA mostró una correlación positiva (0.5) con el cuestionario de referencia externa, confirmando su validez. En el análisis de la consistencia interna se encontró una Alpha de Cronbach de 0.95.

Conclusiones: El análisis estadístico muestra una elevada fiabilidad test-retest y consistencia interna del HRQLHA, además de su validez externa. En la validación del HRQLHA se han incluido por primera vez pacientes alérgicos a veneno de *Polistes*, muy prevalente en nuestra área, demostrando la utilidad del cuestionario también en estos pacientes.

Palabras clave: Cuestionario de Calidad de Vida. Validación transversal. Alergia a veneno de himenópteros. *Polistes*.

Introduction

Over the last 2 decades, quality of life questionnaires have become part of daily clinical practice, as they enable health status and treatment outcomes to be assessed in terms relevant to the patient. They also serve as an aid to clinical decision-making and improve the doctor-patient relationship by enabling patients to participate in their treatment [1-4].

Patients allergic to hymenoptera venom perceive their disease with varying degrees of anxiety, which can affect them socially, emotionally, and professionally, thus diminishing their quality of life. However, general health-related quality of life questionnaires are usually designed for illnesses in which symptoms are apparent and medication requirements are constant. Therefore, they are not suitable for venom-allergic patients who remain asymptomatic until they are stung.

In 2002, Oude Elberink et al [5] developed a quality of life questionnaire specifically for patients with anaphylaxis due to *Vespula* venom (Vespid Allergy Quality of Life Questionnaire [VQLQ]), which was validated in both Dutch and English. The questionnaire consisted of 14 questions with 7 response options giving a score of 1 to 7, with higher scores representing higher quality of life. Most of the questions were related to the emotional aspects of the patient's life, although questions related to work, leisure, and outside activities were also included. This questionnaire has demonstrated its validity, reliability, and sensitivity in several studies and has shown that immunotherapy with hymenoptera venom significantly improves the quality of life of allergic patients [6-8]. A German version of the VQLQ was recently validated [9]. To date, the questionnaire has only been validated for patients allergic to *Vespula* venom, because *Polistes* species is infrequent in the areas studied. Similarly, *Apis* species was not included because most patients were beekeepers and venom allergy was considered an occupational disease with a different clinical profile.

We describe the process for cross-sectional validation of the Spanish version of the VQLQ. Of note, this validated questionnaire is the first to include patients allergic to venom from *Vespula*, *Polistes*, and *Apis*.

Patients and Methods

In 2008, the Committee of Allergy to Hymenoptera of the Spanish Society of Allergy and Clinical Immunology began a multicenter cross-sectional study of patients who were allergic to the venom of *Apis*, *Vespula*, and *Polistes* species in order to validate the Spanish version of the VQLQ using the original English-language version as a starting point.

Consent for the validation process and subsequent diffusion of the results was obtained from the authors of the original version. Below we describe the validation process.

Translation, Cultural Adaptation, and Backtranslation

The VQLQ was translated into Spanish by a professional translator. The initial version was assessed by doctors and patients from different linguistic areas of Spain, namely, central Spain (Guadalajara), Galicia (Vigo), and Catalonia (Tortosa) to evaluate the initial reaction to the questionnaire and to incorporate the suggestions and changes best suited to our particular setting. Once these modifications had been made, a cultural adaptation of the questionnaire was carried out, and the new version was backtranslated into English, revised, discussed, and accepted by the authors of the original version. In this way, the final version of the questionnaire—The Health-related Quality of Life Questionnaire for Hymenoptera Venom-Allergic Patients (HRQLHA)—was agreed upon (Appendix), and the validation process was begun.

Cross-sectional Validation of the Questionnaire

The questionnaire was validated in a multicenter, cross-sectional, descriptive, and observational study using a test-retest design. We included patients aged over 14 years diagnosed with a systemic allergic reaction to venom from *Apis*, *Vespula*, or *Polistes* species. Beekeepers and patients who had difficulty reading, writing, or understanding Spanish were excluded. The study was approved by the ethics and clinical research committees of the participating hospitals. All patients were informed about the study and provided their consent to participate.

An expectation of outcome questionnaire (EOQ) was used as an external reference point for the validation. This had previously been used in the validation of the original version [5] and consisted of 2 questions related to the risk perceived by patients of experiencing a severe allergic reaction or dying as a result of a new hymenoptera sting (Figure 1). On the first day of the study, patients filled out the HRQLHA and the EOQ, noting the time they had taken to do this. If any questions remained unanswered, patients were asked to explain the reason for this and to add any comments they thought appropriate on the questionnaire itself. Patients also completed the 12-item short-form health survey (SF-12) and a visual analog scale (VAS), both of which are used to assess general health. Patients were subsequently given a second version of the HRQLHA, in which the order of the questions had been changed, and instructed to fill it out at home 4 days later, together with the EOQ, the SF-12, and the VAS. Patients were asked to return all the questionnaires to the corresponding allergy departments. This test-retest design allowed the researchers to verify that the responses to the questionnaires were the same, irrespective of the order in which the questions were asked or exactly when they were answered,

Cuestionario de expectativa de resultados

1. ¿Cree que tiene riesgo de morir si fuera picado otra vez por el insecto que ya le produjo la reacción alérgica (avispa, avispones y abejas)?

- Creo que no tengo ningún riesgo de morir si fuera picado.
- Creo que no tengo casi ningún riesgo de morir si fuera picado.
- Creo que tengo un riesgo muy bajo de morir si fuera picado.
- Creo que tengo un riesgo bajo de morir si fuera picado.
- Creo que tengo un riesgo moderado de morir si fuera picado.
- Creo que tengo un riesgo alto de morir si fuera picado.
- Creo que tengo un riesgo altísimo de morir si fuera picado.

2. ¿Cree que tiene riesgo de sufrir una reacción grave si fuera picado otra vez por el insecto que ya le produjo la reacción alérgica (avispa, avispones y abejas)?

- Creo que no tengo ningún riesgo de tener una reacción grave.
- Creo que tengo un riesgo muy bajo de tener una reacción grave.
- Creo que tengo un riesgo bajo de tener una reacción grave.
- Creo que tengo un riesgo moderado de tener una reacción grave.
- Creo que tengo un riesgo alto de tener una reacción grave.
- Creo que tengo un riesgo muy alto de tener una reacción grave.
- Creo que siempre tendré una reacción grave.

Figure 1. Expectation of outcome questionnaire.

thus enabling the reliability and stability of the questionnaire to be evaluated [10].

Statistical Analysis

The statistical analysis was carried out with the collaboration of the Instituto de Investigación Biomédica in Lleida. Data were analyzed using the program R. The *t* test was used to compare means from independent groups, and the Pearson coefficient correlation was used to establish a linear relationship between quantitative variables. Test-retest reliability was calculated using the intraclass correlation coefficient. The external validity of the HRQLHA and its relationship to the SF-12 was evaluated using the Pearson correlation coefficient. The internal consistency of the questionnaire was assessed using the Cronbach α and Guttman λ_6 . Values were expressed as mean (SD) or median (IQR).

Results

The cultural adaptation of the questionnaire included 2 small modifications related to activities typical of our setting such as horticultural tasks or cooking outdoors. These activities were perceived as high-risk situations and were not specified in the original questionnaire. They were therefore included in an item referring to agricultural tasks and in another item on eating in the open air, which included cooking outdoors. These modifications were reviewed, discussed, and accepted by the authors of the original version. The final version of the HRQLHA can be seen in the Appendix.

Initially, 134 patients were included in the study, although 18 did not meet the inclusion criteria or did not complete the second questionnaire. Consequently, the final sample comprised 116 patients.

The mean age of the patients was 44 (12.77) years, and there were more men than women (66%). The geographic distribution

of the patients is shown in Figure 2. This distribution was very wide, and areas where 2 languages are spoken such as Galicia and Catalonia were included to verify that the questionnaire was suitable for the whole population. Most patients worked in agriculture (35%) and the construction industry (18%).

The most common venom causing the reaction was *Apis* (41%), followed by *Polistes* (33%), and *Vespula* (18%). More than 1 venom was involved in 8% of cases. Most of the systemic reactions were grade III (38%) and grade IV (30%)



Figure 2. Geographic distribution of the patients included.

Table 1. Cross-sectional Validation of HRQLHA

No. of patients	116
Mean (SD) age, y	44 (12.77)
Sex	
- Female, No. (%)	40 (34%)
- Male, No. (%)	76 (66%)
Severity of reaction	
- Slight (Mueller grade I and II), No. (%)	31 (32%)
- Severe (Mueller grade III and IV), No. (%)	65 (68%)
Mean (SD) time on immunotherapy	3.10 (2.26)
Mean (SD) HRQLHA score	3.48 (0.41)
Mean (SD) HRQLHA response time, min	10.43 (5.86)
Mean (SD) SF-12 score	
PCS	50.45 (7.3)
MCS	51.93 (9.01)
Test-retest reliability	
Intra-class correlation coefficient (ICC)	
ICC HRQLHA	0.85
ICC EOQ	0.82
External validity	
EOQ, r	0.5
PCS, r	-0.34
MCS, r	-0.37
Internal consistency	
Cronbach α	0.95
Guttman λ_6	0.97

Abbreviations: EOQ, expectation of outcome questionnaire; Health-related Quality of Life Questionnaire for Hymenoptera Venom-Allergic Patients; MCS, mental component of the SF-12; PCS, physical component of the SF-12; r, Pearson correlation coefficient

according to the Mueller classification [11]. Mean progression from diagnosis was 4.9 years (median, 4 [4.12]), and, consequently, most patients (92%) were receiving treatment with immunotherapy. Mean duration of immunotherapy was 3.1 years (median, 2 [3]) (Table 1).

The results relating to the validation of the questionnaire are shown in Table 1. The mean HRQLHA score of 3.48 was lower than the mean score in the original study (4.31) [5], thus reflecting the poorer perception of quality of life in the study patients. Mean response time was 10.43 minutes, which was similar to that of the original study, and no patients required help. The SF-12 scores were around the mean for the population, both for the physical and mental components, and the mean VAS score was 7.43.

The intraclass correlation coefficient was 0.85 for the HRQLHA and 0.82 for the EOQ, thus indicating high test-retest reliability (stability). The HRQLHA had a positive correlation of 0.5 with the EOQ, which demonstrated its external validity. However, we found negative correlations between the HRQLHA and the SF-12 for both the physical and mental components, thus confirming that quality of life questionnaires administered to analyze general health are not useful for evaluating the quality of life of venom-allergic patients.

Analysis of the internal consistency of the HRQLHA yielded a Cronbach α of 0.95 and a Guttman λ_6 of 0.97, both of which are excellent [10].

The average interitem correlation was 0.59. The correlations between the different items and total scores are shown in Table 2.

Some questions may not be answered, depending on the individual patient's situation (eg, if they work or if they go on holiday); consequently, 9 to 14 questions are usually answered. The effect of lost items was calculated, and internal consistency remained high irrespective of item loss (Table 3).

Questionnaire scores were analyzed in relation to age, sex, reaction grade, and time on immunotherapy. Significant differences were found only for sex: women scored higher than men (4.34 vs 3.01, $P < .05$). No correlation was found with the other variables.

Discussion

We describe the process of translation, cultural adaptation, backtranslation, and cross-sectional validation of the Spanish version of the VQLQ using the original English-language version as a starting point. The number of patients included was high ($n=116$). All patients were allergic to venom from *Apis*, *Vespula*, or *Polistes* and they came from areas where different languages are spoken.

Excellent results were obtained for the feasibility, stability, external validity, and reliability of the questionnaire (Table 1).

The questionnaire was well accepted by the patients, who were able to fill it out quickly (approximately 10 minutes) and without help. The inclusion of patients living in areas where 2 languages are spoken (ie, Galicia and Catalonia), together with patients from the central and southern regions of the country, confirms that the questionnaire is suitable for the majority of the population.

The median score on the questionnaire was low (3.48), thus reflecting that allergy to venom significantly affects the quality of life of patients in our area. Consistent with results

from other authors [12], we found no correlation between the questionnaire score and age, grade of reaction, or time on immunotherapy. However, we did find a significant difference with regard to gender: the questionnaire score was higher for women than for men (4.34 vs 3.01, $P < .05$), thus revealing a higher quality of life in women. These results contrast with those from other studies, which reported a lower score for women [12].

Table 2. Correlation of Each Item With the Overall Score

	n	r	r.cor	Mean	SD
Q1	115	0.72	0.70	3.4	1.8
Q2	115	0.67	0.65	3.7	1.8
Q3	115	0.75	0.73	4.3	2.0
Q4	114	0.69	0.67	4.1	2.0
Q5	116	0.71	0.68	3.8	2.0
Q6	116	0.79	0.77	3.7	1.9
Q7	116	0.75	0.74	2.8	1.8
Q8	114	0.84	0.84	3.5	1.7
Q9	115	0.87	0.87	3.5	1.8
Q10	10	0.76	0.74	3.2	1.8
Q11	98	0.84	0.83	3.3	1.8
Q12	83	0.89	0.89	3.6	1.8
Q13	92	0.87	0.87	3.2	1.8
Q14	107	0.90	0.91	3.3	1.8

Abbreviations: Q, question; r, Pearson correlation coefficient; r.cor, correlation corrected for item overlap and scale reliability

Table 3. Reliability if an Item Is Lost

	r. alpha	std. alpha	G6 (smc)	Average_r
Q1	0.95	0.95	0.97	0.60
Q2	0.95	0.95	0.97	0.61
Q3	0.95	0.95	0.97	0.60
Q4	0.95	0.95	0.97	0.61
Q5	0.95	0.95	0.97	0.61
Q6	0.95	0.95	0.97	0.59
Q7	0.95	0.95	0.97	0.60
Q8	0.95	0.95	0.97	0.59
Q9	0.95	0.95	0.97	0.58
Q10	0.95	0.95	0.97	0.60
Q11	0.95	0.95	0.97	0.59
Q12	0.95	0.95	0.96	0.58
Q13	0.95	0.95	0.97	0.58
Q14	0.95	0.95	0.97	0.58

Abbreviations: average_r, mean inter-item correlation; G6, Guttman λ_6 ; Q, question; r, Pearson correlation coefficient; r.cor, correlation corrected for item overlap and scale reliability; r.alpha, alpha based on covariances; std.alpha, standardized alpha based on correlations

Appendix. Quality of Life Questionnaire for Hymenoptera Venom–Allergic Adults

Conteste por favor a las siguientes preguntas marcando con una equis(x) la respuesta que más se adecue a su situación.

1. A causa de su alergia, ¿Cuanto le atemoriza o asusta que le pique un insecto?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje cuánto le atemoriza o asusta, a causa de su alergia, que le pique un insecto.

- No estoy atemorizado ni asustado en absoluto.
- Estoy atemorizado o asustado muy ligeramente.
- Estoy atemorizado o asustado ligeramente.
- Estoy un poco atemorizado o asustado.
- Estoy moderadamente atemorizado o asustado.
- Estoy muy atemorizado o asustado.
- Estoy extremadamente atemorizado o asustado.

2. ¿Con qué frecuencia se pone nervioso, a causa de su alergia, en presencia de insectos (avispa, avispones y abejas) que pican?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que se pone nervioso, a causa de su alergia, en presencia de insectos que pican.

- No me pongo nervioso nunca.
- No me pongo nervioso casi nunca.
- Me pongo nervioso algunas veces.
- Me pongo nervioso de manera moderada.
- Me pongo nervioso muchas veces.
- Me pongo nervioso casi siempre.
- Me pongo nervioso siempre.

3. ¿Con qué frecuencia se aleja, a causa de su alergia, de zonas donde aparecen insectos que pican?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia en que se aleja, a causa de su alergia, de zonas donde aparecen insectos que pican.

- No me alejo nunca.
- No me alejo casi nunca.
- Me alejo algunas veces.
- Me alejo de manera moderada.
- Me alejo muchas veces.
- Me alejo casi siempre.
- Me alejo siempre.

4. ¿Se asusta, a causa de su alergia, cuando un insecto le ha picado?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje si se asusta, a causa de su alergia, cuando un insecto le ha picado.

- No me asusto nunca.
- No me asusto casi nunca.
- Me asusto algunas veces.
- Me asusto de manera moderada.
- Me asusto muchas veces.
- Me asusto casi siempre.
- Me asusto siempre.

5. ¿Con qué frecuencia evita usted, a causa de su alergia, determinados lugares?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que evita usted determinados lugares a causa de su alergia.

- No evito determinados lugares nunca.
- No evito determinados lugares casi nunca.
- Evito determinados lugares algunas veces.
- Evito determinados lugares de manera moderada.
- Evito determinados lugares muchas veces.
- Evito determinados lugares casi siempre.
- Evito determinados lugares siempre.

6. ¿Con qué frecuencia comprueba usted, a causa de su alergia, que no haya insectos que piquen (avispa, avispones y abejas) en determinados lugares?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted comprueba, a causa de su alergia, que no haya insectos que piquen en determinados lugares.

- No compruebo determinados lugares nunca.
- No compruebo determinados lugares casi nunca.
- Compruebo determinados lugares algunas veces.
- Compruebo determinados lugares de manera moderada.
- Compruebo determinados lugares muchas veces.
- Compruebo determinados lugares casi siempre.
- Compruebo determinados lugares siempre.

7. ¿Se siente usted limitado en sus actividades durante los meses de verano a causa de su alergia?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted se siente limitado en sus actividades durante los meses de verano a causa de su alergia.

- No me siento limitado.
- Me siento muy poco limitado.
- Me siento algo limitado.
- Me limita de manera moderada.
- Me limita bastante.
- Me limita mucho.
- Me limita muchísimo.

8. ¿Con qué frecuencia se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican (avispa, avispones y abejas)?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican.

- No me siento molesto nunca.
- No me siento molesto casi nunca.
- Me siento molesto a veces.
- Me siento molesto de manera moderada.
- Me siento molesto muchas veces.
- Me siento molesto casi siempre.
- Me siento molesto siempre.

Appendix. (Continued)

Conteste por favor a las siguientes preguntas marcando con una equis(x) la respuesta que más se adecue a su situación.

9. ¿Con qué frecuencia se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican (avispas, avispones y abejas) cuando se encuentra al aire libre?

Por favor, indique marcando con una equis (x) la respuesta que más se adecue a la frecuencia con la que usted se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican cuando se encuentra al aire libre.

- No me siento molesto nunca.
- No me siento molesto casi nunca.
- Me siento molesto algunas veces.
- Me siento molesto de manera moderada.
- Me siento molesto muchas veces.
- Me siento molesto casi siempre.
- Me siento molesto siempre.

10. ¿Trabaja usted?

No. Vaya a la siguiente pregunta.

Sí. ¿Con qué frecuencia se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican (avispas, avispones y abejas) cuando está en el trabajo?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican cuando está en el trabajo.

- No me siento molesto nunca.
- No me siento molesto casi nunca.
- Me siento molesto algunas veces.
- Me siento molesto de manera moderada.
- Me siento molesto muchas veces.
- Me siento molesto casi siempre.
- Me siento molesto siempre.

11. ¿Se va usted de vacaciones?

No. Vaya a la siguiente pregunta.

Sí. ¿Con qué frecuencia se siente molesto por el hecho de tener que estar alerta, a causa de su alergia, por si hay insectos que pican (avispas, avispones y abejas) cuando está de vacaciones?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted se siente molesto por el hecho de tener que estar alerta, a causa de su alergia, por si hay insectos que pican cuando está de vacaciones.

- No me siento molesto nunca.
- No me siento molesto casi nunca.
- Me siento molesto algunas veces.
- Me siento molesto de manera moderada.
- Me siento molesto muchas veces.
- Me siento molesto casi siempre.
- Me siento molesto siempre.

12. ¿Cultiva plantas? (jardín, huerto...)

No. Vaya a la siguiente pregunta.

Sí. ¿Con qué frecuencia se siente molesto, a causa de su alergia,

por el hecho de tener que estar alerta por si hay insectos que pican (avispas, avispones y abejas) cuando cultiva plantas?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican cuando cultiva plantas.

- No me siento molesto nunca.
- No me siento molesto casi nunca.
- Me siento molesto algunas veces.
- Me siento molesto de manera moderada.
- Me siento molesto muchas veces.
- Me siento molesto casi siempre.
- Me siento molesto siempre.

13. ¿Come o cocina usted al aire libre?

No. Vaya a la siguiente pregunta.

Sí. ¿Con qué frecuencia se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican (avispas, avispones y abejas) cuando come o cocina al aire libre?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican cuando come o cocina al aire libre.

- No me siento molesto nunca.
- No me siento molesto casi nunca.
- Me siento molesto algunas veces.
- Me siento molesto de manera moderada.
- Me siento molesto muchas veces.
- Me siento molesto casi siempre.
- Me siento molesto siempre.

14. ¿Da usted paseos por el campo?

No. Vaya a la siguiente pregunta.

Sí. ¿Con qué frecuencia se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican (avispas, avispones y abejas) cuando da paseos por el campo?

Por favor, indique marcando con una equis (x) la respuesta que mejor refleje la frecuencia con la que usted se siente molesto, a causa de su alergia, por el hecho de tener que estar alerta por si hay insectos que pican cuando da paseos por el campo.

- No me siento molesto nunca.
- No me siento molesto casi nunca.
- Me siento molesto algunas veces.
- Me siento molesto de manera moderada.
- Me siento molesto muchas veces.
- Me siento molesto casi siempre.
- Me siento molesto siempre.

The prevalence of allergy to *Polistes* venom in Spain is high, in contrast with central Europe [13,14]. *Polistes* is the most frequent venom in the center and south of Spain. The HRQLHA is the first questionnaire to include *Polistes*-allergic patients in its validation process, and, as expected, proved useful for the evaluation of this group, as well as for patients who were allergic to *Apis* or *Vespula*.

We excluded patients who were beekeepers, as in the original study, because allergy is an occupational disease in this group and the approach to allergy is different from that used with the general population. As a result, the HRQLHA cannot be used in this particular group of patients. Similarly, we excluded children under the age of 14, since it would be necessary to administer a questionnaire tailored to their cognitive abilities.

For the first time, the results from the HRQLHA were correlated with those from a general health quality of life questionnaire (SF-12). No positive correlations were found for the physical or mental components, indicating that patients may perceive their quality of life to be very good in terms of general health but very bad with respect to their venom allergy. Consequently, specific quality of life questionnaires should be used for venom-allergic patients.

The use of the HRQLHA in daily clinical practice could prove useful in the initial approach to the venom-allergic patient, since those with a very poor quality of life may require additional efforts on the part of the allergist when attempting to reassure them and explain the benefits of treatment with specific immunotherapy.

Specific immunotherapy improves the quality of life of venom-allergic patients [6]; consequently, a low score on the VQLQ could reinforce the indication for immunotherapy in patients with grade I systemic reactions [7].

The Committee of Allergy to Hymenoptera is currently undertaking the longitudinal validation of the HRQLHA by measuring the sensitivity of the instrument to change. The very positive results obtained are pending publication.

Acknowledgments

We thank Montserrat Martínez (Instituto de Investigación Biomédica, Lleida) for her help with the statistical analysis

Funding

This study was partially funded by the Foundation of the Spanish Society of Allergy and Clinical Immunology.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Previous Presentation

These data were presented as a paper in the session "Quality of life" at the International Symposium of Allergy to Hymenoptera held in Granada, Spain in October 2013.

References

- Colás Sanz C, De la Hoz Caballer MB, Rodríguez Rodríguez M, Roger Reig A. Calidad de vida en las enfermedades alérgicas. In Peláez A, Dávila JJ, Eds. Tratado de Alergología; 2007. p. 1709-34.
- Guyatt GH, Feeny DH, Patrick DL. Measuring health-related quality of life. *Ann Intern Med.* 1993;118:622-9.
- Keszei AP, Novak M, Streiner DL. Introduction to health measurement scales. *J Psychosom Res.* 2010;68:319-23.
- Schipper H, Clinch J, Powell V. Definitions and conceptual issues. In Spilker B, editors. Quality of life assessment in clinical trials; 1990. p. 11-24.
- Oude Elberink JN, de Monchy JG, Golden DB, Brouwer JL, Guyatt GH, Dubois AE. Development and validation of a health-related quality-of-life questionnaire in patients with yellow jacket allergy. *J Allergy Clin Immunol.* 2002;109:162-70.
- Oude Elberink JN, de Monchy JG, van der Heide S, Guyatt GH, Dubois AE. Venom immunotherapy improves health-related quality of life in patients allergic to yellow jacket venom. *J Allergy Clin Immunol.* 2002;110:174-82.
- Oude Elberink JN, van der Heide S, Guyatt GH, Dubois AE. Immunotherapy improves health-related quality of life of adult patients with dermal reactions following yellow jacket stings. *Clin Exp Allergy.* 2009;39:883-9.
- Oude EJ. Venom immunotherapy (VIT): clinical efficacy and improvement in quality of life. *Drugs Today (Barc).* 2008;44 Suppl B:43-5.
- Fischer J, Feidt A, Giel KE, Martens U, Zipfel S, Biedermann T, Teufel M. Quality-of-life in wasp venom allergy - validation of the German version of the "Vespid Allergy Quality of Life Questionnaire" (VQLQ-d). *J Dtsch Dermatol Ges.* 2011;9:379-85.
- Carvajal A, Centeno C, Watson R, Martínez M, Rubiales AS. How is an instrument for measuring health to be validated? *An Sist Sanit Navar.* 2011;34:63-72.
- Mueller HL. Diagnosis and treatment of insect sensitivity. *J Asthma Res.* 1966;3:331-3.
- Oude Elberink JN, Dubois AE. Quality of life in insect venom allergic patients. *Curr Opin Allergy Clin Immunol.* 2003;3:287-93.
- Marques L, Vega A, Muñoz E, Moreno-Ancillo A. Epidemiologic observations on Hymenoptera allergy in Spain: the Alergológica-2005 study. *J Investig Allergol Clin Immunol.* 2009;19 Suppl 2:51-5.
- Marqués Amat L. Hipersensibilidad a los insectos. In SEAI eds: Alergológica 2005; 2005. p. 283-96.

■ Manuscript received January 23, 2014; accepted for publication, June 19, 2014.

■ Teresa Alfaya Arias

Hospital General Universitario de Ciudad Real
Servicio de Alergia
C/Obispo Rafael Torija, s/n
13005 Ciudad Real.
E-mail: talfaya@telefonica.net