

Original Research

Changes in knowledge after attending a community pharmacists' asthma workshop

Jose P. GARCÍA CORPAS, Ana OCAÑA ARENAS, Lorena GONZÁLEZ GARCÍA, Estefania LÓPEZ DOMÍNGUEZ, Emilio GARCÍA JIMÉNEZ, Pedro AMARILES, Maria J. FAUS.

ABSTRACT*

Background: Pharmacists can play an important role in both the detection of asthma and its monitoring in patients with asthma.

Objective: To assess the change in asthma knowledge, and associated variables, of pharmacists attending the "Pharmacotherapy follow-up of Adult Bronchial Asthma" workshops run by the Pharmaceutical Care Center of Stada Laboratories.

Methods: All participants in the "Pharmacotherapy follow-up of Adult Bronchial Asthma" workshops completed a pre-test and a post-test. Those who left the workshop and those who did not complete the tests were not included in the analysis. Tests were scored from 0 to 10, and the change in scores was analyzed.

Results: Of the 90 participating pharmacists, 79 fulfilled the inclusion criteria. 81% (64) were female, and their average age was 38.8 years [CI95%=36.65-40.81]. The average pre-test score was 3.65 [CI95%=3.29-4.01]; 72.2% of the pharmacists scored less than 5 points. The average post-test score was 7.33 [CI95%=7.01-7.65]. The average change in scores was 3.68 [CI95%=3.29-4.07]. No statistical significance was found between this change in scores and other variables analyzed (age, gender, previous training, or position in the pharmacy).

Conclusion: CAF Stada "Adult Bronchial Asthma" workshops increased pharmacists' general knowledge.

Keywords: Asthma. Pharmacy continuing education. Spain.

RESUMEN

Antecedentes: Los farmacéuticos pueden jugar un papel importante tanto en la detección de asma como en su seguimiento.

Objetivos: Determinar la variación de conocimiento, y las variables asociadas, de los farmacéuticos asistentes al taller de "Seguimiento Farmacoterapéutico en Asma bronquial en Adultos" que realizan el Centro de Atención Farmacéutica del laboratorio Stada:(CAF-Stada)

Método: Todos los asistentes al taller de "Seguimiento Farmacoterapéutico en Asma bronquial en Adultos" completaron un test antes de la sesión y otro después. Aquellos que abandonaron el taller o no cumplieron los test fueron excluidos del estudio. El test puntuaba de 0 a 10 y se analizaron las variaciones en las puntuaciones.

Resultado: De los 90 participantes, 79 cumplieron los criterios de inclusión. El 81,4% fueron mujeres y la edad media fue de 38,8 años [IC95%=36,65-40,81]. La puntuación media en el test inicial fue 3,65 [IC95%=3,29-4,01]; el 72,2% de los farmacéuticos obtuvo una puntuación inferior a 5 puntos. La puntuación media en el test final fue 7,33 [IC95%=7,01-7,65]. La variación de conocimiento media fue 3,68 [IC95%=3,29-4,07]. No hay relación estadísticamente significativa entre variación de conocimiento y las otras variables analizadas (edad, género, otros cursos, o cargo en la farmacia).

Conclusión: El taller de "Seguimiento Farmacoterapéutico en Asma bronquial en Adultos" que realizan el CAF-Stada) aumenta el conocimiento general del farmacéutico.

Palabras clave: Asma. Formación continuada de farmacia. España.

(English)

INTRODUCTION

Asthma is principally treated with inhaled medication; thus, the illness, as well as its treatment, has distinct characteristics. First, bronchoconstriction prevents the medications from reaching the target area, and, second, patients have to learn how to use the inhalers effectively.^{1,2} Therefore, as well as the complexity of asthma drug therapy, patients need to be taught how to prepare and use the inhalers, which are a complex drug delivery system.

* Jose P GARCÍA CORPAS. MSc (Pharm). Pharmaceutical Care Research Group. University of Granada (Spain).
Ana OCAÑA ARENAS. MSc (Pharm). Pharmaceutical Care Research Group. University of Granada (Spain).
Lorena GONZÁLEZ GARCÍA. MSc (Pharm). Pharmaceutical Care Center of Stada Laboratories. Barcelona (Spain)
Estefania LÓPEZ DOMÍNGUEZ. MSc (Pharm). Pharmaceutical Care Center of Stada Laboratories. Barcelona (Spain)
Emilio GARCÍA JIMÉNEZ. PhD, PharmD. Pharmaceutical Care Center of Stada Laboratories. Barcelona (Spain)
Pedro AMARILES. MSc (Pharm). Pharmaceutical Care Research Group. University of Granada (Spain).
Maria J. FAUS. PhD, PharmD. Pharmaceutical Care Research Group. University of Granada (Spain).

Pharmacists can play an important role in the detection of asthma and the monitoring of patients with asthma. Given that asthma treatment guidelines encourage patient participation through self-control of the illness, pharmacists have a role in providing appropriate health education to these patients.^{3,4}

A one-year study of asthmatic patients between 20 and 64 years of age who were actively assessed by pharmacists concluded that pharmacists' intervention had very positive effects on clinical outcomes of asthma patients. Following pharmacist intervention, patients' asthma symptoms were greatly reduced and their expiratory flow rates increased.⁵ A further study of children aged between 7 and 17 years with moderate asthma requiring daily medication concluded that pharmacist intervention significantly improved the quality of life both for the asthmatic children and their parents, and resulted in patients and their parents having greater awareness of the illness and its treatment.⁶

A study by Andres Jacome et al.⁷ showed that pharmacists lacked an understanding of the correct use of inhalers. Serrier et al.⁸ demonstrated the importance of training programmes for dispensing staff, arguing that properly trained staff would improve their responses to patients' and physicians' demands, as well as enhance treatment, monitoring, and practice, thereby providing patients with the ability to obtain greater control of their illness.

The aim of this study was to assess the change in asthma knowledge, and the variables associated with the change in knowledge, of pharmacists attending the "Pharmacotherapy follow-up of Adult Bronchial Asthma" workshops run by the Pharmaceutical Care Center of Stada Laboratories.

METHODS

Workshops for pharmacists were organized across Spain by the Stada Laboratory Pharmaceutical Care Centre (CAF-Stada), in collaboration with the Pharmaceutical Care Research Group at the University of Granada (GIAF-UGR). The study was carried out during February and March 2006 in the three Spanish cities where the "Adult Bronchial Asthma" workshop had taken place (Valencia, Madrid, Guadalajara). The study included all subjects who had attended the workshop and had completed the pre and post-tests.

The workshops consisted of a single theory-practice session that lasted 3 hours 40 minutes. The session was divided into two parts. Part One dealt with theory. Participants were presented with general information about adult bronchial asthma (its definition, pathophysiology, prevalence, and treatment), as well as particular information dealing with pharmacotherapy follow-up and the Dáder Method. Part Two dealt with application of the theory. Pharmacists discussed how they would deal with particular bronchial asthma cases.

A test consisting of 10 questions was developed to cover concepts dealt with during the theory part of the workshop. Each question had 4 possible answers, of which only one was correct. The same test was given at the start (pre-test) and at the end (post-test) of the workshop. Each correct answer was worth one point, and no points were given for incorrect answers. Therefore, the final scores could be between 0 and 10. The change in pharmacists' knowledge was recorded as the difference between the pre- and post-test scores.

The change in test scores was considered to be a dependent, continuous variable between 0 and 10 and categorised as: limited (less than 3 points difference), acceptable (equal to or greater than 3, but less than 6 points difference) and major (greater than or equal to 6 points difference).

Data were gathered on other independent variables in order to analyse their relationship to the change in tests scores. Results were analysed using SPSS, version 11.5.

RESULTS

Of the 90 participating pharmacists, 79 fulfilled the inclusion criteria. Of those included in the study, 81% (64) were female, and most (50.6%) were staff pharmacists. With respect to previous training, 56 (70.9%) participants had previously attended several courses related to this subject. The participants' age ranged from 23 to 58 years, with an average of 38.8 years [CI95%= 36.65-40.81]. Then the participants were divided into 4 groups based on age, those under 30 years of age (27.8%) were the more prevalent.

	No.	%
Female	64	81.0
Male	15	19.0
Owner	39	49.4
Staff	40	50.6
From 23 to 30 years old	22	27.8
From 31 to 37 years old	17	21.5
From 38 to 46 years old	20	25.3
From 47 to 58 years old	20	25.3
No previous courses	15	19.0
One previous course	8	10.1
Several previous courses	56	70.9

On the pre-test, the lowest score was 0 and the highest score was 8. The most common score was 4 points, obtained by 21 pharmacists (26.6%); the average score was 3.65 [CI95%=3.29-4.01]. A score of less than 5 points was obtained by 72.2% of the pharmacists.

On the post-test, the lowest score was 5 and the highest was 10. The most common score was 6 (24.1% of the pharmacists), while the highest score (10) was obtained by 4 pharmacists (5.1%). The average score was 7.33 [CI95%=7.01-7.65].

One pharmacist (1.3%) showed no change (0 points) between the pre- and post-test scores, while 2 pharmacists (2.5%) had a difference of 8 points between the pre- and post-test scores. The most common difference between pre- and post-test

scores was 3 points, obtained by 23 (29.1%) of the pharmacists; the average difference was 3.68 [CI95%=3.29-4.07]; and 27.8% (22) of the participants had a difference between the pre- and post-test scores greater than 5. Overall, 36.7% of the participants recorded an acceptable improvement in scores, while 10.1% recorded a major improvement.

The relationship between the independent and the dependent variables was not statistically significant. The majority of both male and female participants showed limited changes in their knowledge, and the majority of participants in all 4 age groups showed

limited changes in their knowledge. Regarding the participants' positions in the pharmacy, 15 (38.46%) owners showed an acceptable improvement in scores, compared to 14 (40%) staff pharmacists. On the other hand, 6 (15%) staff pharmacists showed major changes in pre- and post-test scores, compared to 2 (22.2%) owners. With respect to former training, 62.1% (18) of the owner pharmacists who had formerly attended several training courses showed an acceptable improvement in knowledge. Of those with a major improvement in scores, 50% (4) had attended several courses.

	Difference between pre- and post-test scores			P
	Limited	Acceptable	Major	
Female	33	25	6	0.651
Male	9	4	2	
Owner	22	15	2	0.347
Staff	20	14	6	
From 23 to 30 years old	11	7	4	0.765
From 31 to 37 years old	9	7	1	
From 38 to 46 years old	10	9	1	
From 47 to 58 years old	12	6	2	
No previous courses	5	8	2	0.205
One previous course	3	3	2	
Several previous courses	34	18	4	

Of the pharmacists who scored more than 5 points on the pre-test, 81.8% (22) showed little change between the pre- and post-test scores. Of those whose pre-test score was 4 points, 38.1% (8) showed acceptable changes between the pre- and post-test scores. Of those who scored over 7 points, 100% showed limited change between the pre- and post-test scores. The relationship between the pre-test scores and the difference between pre- and post-test scores was statistically significant.

DISCUSSION

As there are more female than male pharmacists in Spain, irrespective of age group, it is not surprising that the study included more female than male participants.⁹

There was no statistical difference in learning between those who attended previous courses on Pharmaceutical care and those who did not. This could be related to the fact that this was not a basic level Pharmaceutical Care course. The workshop focused on the pharmacotherapy follow-up of a specific illness; the fact that some of the

pharmacists had prior knowledge of pharmacotherapy follow-up using the Dáder Method did not affect the final results.

As expected, the greatest change in pre- and post-test scores was among participants who had lower test scores. The relationship between the pre-test scores and the difference between the pre- and post-test scores was statistically significant. The results, therefore, depend more on the participants' prior knowledge than on the quality of the course. Dualde et al.¹⁰ recorded similar results in a study of an optional Pharmaceutical Care course given by the Pharmaceutical Faculty of Valencia.

CONCLUSION

Given that 46.8% of the participants had an acceptable or major increase in knowledge, the CAF Stada "Adult Bronchial Asthma" workshops were shown to increase pharmacists' general knowledge. This increase in knowledge was not statistically related to pharmacists' age, gender, previous training, or position in the pharmacy.

References

1. Beasley R, Cusley M, Holgate ST. A self management plan in the treatment for adult asthma. *Aust J Hosp Pharm* 1989;18:244-48.
2. García de Bikuña B. La administración de especialidades farmacéuticas complejas por vía inhalatoria: actitudes, aptitudes y herramientas. *Pharm Care Esp* 2004; 6(4): 181-8
3. Powel H, Gibson PG. Opciones para la educación sobre el autocuidado para adultos con asma. (Cochrane reviewed translation). In: *La Biblioteca Cochrane Plus*, 2006. número 1. Oxford: Update Software Ltd. Available at: <http://www.update-software.com>
4. Lahdensuo A, Haahtela T, Herrala J, Kava T, Kiviranta K, Kuusisto P, et al.. Randomised comparison of guided self management and traditional treatment of asthma over one year. *BMJ* 1996;312:748-52.

Garcia Corpas JP, Ocaña Arenas A, Gonzalez Garcia L, Lopez Dominguez E, Garcia Jimenez E, Amariles P, Faus MJ. Changes in knowledge after attending a community pharmacists' asthma workshop. *Pharmacy Practice* 2006; 4(3): 139-142.

- 5 Närhi U, Airaksinen M, Tanskaen P, Erlund H. Therapeutic outcomes monitoring by community pharmacists for improving clinical outcomes in asthma. *J Clin Pharm Ther.* 2000; 25(3):177-83
- 6 González-Martín G, Joo I, Sánchez I. Evaluation of the impact of a pharmaceutical care program in children with asthma. *Patient Educ Couns* 2003;49(1) 13-8
- 7 Jácome JA, Iñesta García J, Huetos Ruiz N, Garcia R. Conocimiento de la técnica de inhalación de medicamentos antiastmáticos por farmacéuticos comunitarios. *Pharm Care Esp* 2004; 6(4):191-4
- 8 Serrier P, Muller D, Sevin C, Mechón H, Chanal I. Evaluation of an educational program on asthma for pharmacists. *Presse Med.* 2000;29(36):1987-91.
- 9 Consejo General de Colegios Oficiales de Farmacéuticos. Número de Colegiados y titulares de oficinas de farmacia. Consultado [19-9-06]. Available at: [http://www.portalfarma.com/pfarma/taxonomia/general/gp000016.nsf/voDocumentos/A4C2DD45FCF8B8BCC1256DEF0059477B/\\$File/004.pdf](http://www.portalfarma.com/pfarma/taxonomia/general/gp000016.nsf/voDocumentos/A4C2DD45FCF8B8BCC1256DEF0059477B/$File/004.pdf) (accessed 4 sept 2006)
- 10 Dualde E, Mañes J, Román B, Font G. Evaluación de conocimientos adquiridos en el curso de libre opción de Atención Farmacéutica de la Facultad de Farmacia de Valencia. *Comunicaciones. Pharmacy Practice* 2006; 4 (supl 1): 30