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Patient-physician relationship in the management of asthma: Multicentric approach in Latin America

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Abstract

Objective: To investigate and compare how Latin American physicians rate themselves on the use of communication strategies in the management of asthma patients, and to explore their personal experience and opinions on asthma treatment.

Methods: A cross-sectional survey of physicians attending international medical conferences in Latin America was conducted. Participants rated themselves on frequency of use of 24 communication strategies using a 5-point Likert scale. For statistical analysis, self-rating responses were divided into two classes: very likely to (always or often on Likert scale) and not very likely to (sometimes, seldom or never on Likert scale). Participants also answered 4 multiple choice questions about management of asthma patients. Overall responses were analyzed using descriptive statistics and Chi-square. Multivariate logistic regression analysis was performed to evaluate self-ratings by country, gender, practice area (GP or specialist) and age.

Results: 304 physicians from Ecuador, Argentina and Peru responded. Overall, the majority of respondents rated themselves very likely to use 21 of the 24 communication strategies. Some significant differences were observed in self-ratings among physicians from different countries, between males and females, between GPs and specialists and between younger and older physicians. Responses to the multiple choice questions showed that 79.6% of the respondents believed that most or almost all patients can achieve asthma control.

Conclusions: A high percentage of the Latin American physicians surveyed rated themselves very likely to use good communication strategies when managing asthma patients and felt that asthma control can be achieved in most or almost all patients.

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ABSTRACT

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INTRODUCTION

Uncontrolled asthma is a serious problem around the world, and particularly in Latin America. Worldwide, about 1 in 4 patients report daytime symptoms every day or on most days, with little regional variability between continents. Frequency of nighttime symptoms every day or on most days ranged from 11% in Europe to 20% in Latin America. The emotional burden of asthma is evident in patients who report fear, depression, and frustration with their disease. Feelings of fear due to asthma were reported by 33% of Latin-American patients. The mean reported rate of overnight hospitalization for urgent treatment of asthma was 23% in Latin America, in contrast to 10% or less in the United States, Europe or Asia (1). 40% of patients in Latin America reported that they or their child missed work or school in the previous year due to asthma (2). The proportion of asthma patients reporting the daily use of a controller medication over the previous 4 weeks was only 38%, according to the Latin America Asthma Insight and Management (AIM) survey (2), and 93% of asthma patients in Latin American were found to have partly controlled or uncontrolled disease(3). Interestingly, 60% of Latin-American asthma patients perceived their asthma to be completely and/or well controlled (2). Taken together, these findings suggest that asthma is not being managed effectively in Latin America, and that ongoing assessment and intervention is mandatory.

Paying attention to how information is gathered by the patient, giving the patient adequate knowledge, and building a cooperative partnership between physician and patient represent important, but sometimes neglected, steps towards better asthma management. General communication plays an integral role in shaping the relationship between physicians and patients while developing proper management behaviors at the

same time (4). For patients, good communication can improve clinical outcome. For healthcare providers, good communication can decrease risk of malpractice and increases overall level of satisfaction (5). Barriers in the patient-physician relationship can diminish asthma control best practices (6,7).

Evidence shows that international guidelines on patient education, physician-patient communication and development of a physician-patient partnership are not always followed (8,9). Asthma patients have expressed the desire to be involved in treatment decisions, and a concern that healthcare professionals may be adopting a ‘‘one size fits all’’ rather than an individualized approach to asthma management (10). The need to improve patients’ knowledge about asthma through enhanced physician–patient communication and the use of patient-focused education has been recognized as an unmet need in asthma care (11).

This study explores and compares the strategies employed by physicians from Argentina, Ecuador and Peru when gathering information from asthma patients and imparting information about asthma to patients. It also explores physicians’ experience of asthma management and physician reported asthma patients’ concerns and disease awareness. Results from this study may provide ideas for ways to improve the relationship between patients and physicians in order to achieve better outcomes in asthma.

METHODS

Study Design

This study was an observational, descriptive, cross sectional study, in which physicians rated themselves on the frequency with which they use various communication strategies with their asthma patients.

A Spanish version of a survey previously developed by an expert panel from the Italian Society of Respiratory Medicine was used. The Spanish version was prepared by the author of the original Italian study (Fulvio Braido, personal communication) and was used for the first time in this study. The survey included 24 statements regarding strategies for gathering information from and imparting information to asthma patients, and 4 questions exploring physicians' experience regarding patients' concerns, patients' disease awareness, the possibility of achieving asthma control, and the applicability of long-term treatment (12). Demographic variables (gender, age), area of practice (specialist or general practitioner (GP) and country) were also included in the survey. The Ethics Committee of Clinica Kennedy Hospital approved the study.

Recruitment

The target population was physicians from Ecuador, Peru and Argentina attending the following meetings between October, 2012 and July, 2014: Respiratory Medicine Congress, Guayaquil, Ecuador; Allergy Meeting, Guayaquil, Ecuador; Internal Medicine Meeting, Quito, Ecuador; Allergy Congress, Lima, Peru; Allergy Congress, Buenos Aires, Argentina. The participation criterion was having a medical doctor diploma. Potential candidates were asked if they often managed patients with asthma, if

they agreed we included them in our study. After that, the data collection team asked for consent and delivered the self-assessment survey.

Assessment

Each respondent marked the frequency of use of each of 24 communication strategies, using a 5-point Likert scale (never, seldom, sometimes, often and always) and answered four multiple choice questions about their experience regarding patients' concerns, patients' disease awareness, the possibility of achieving asthma control, and the applicability of long-term asthma treatment. The 24 communication strategies included 7 having to do with imparting information about asthma to the patient, or education, 4 having to do with gathering information from the patient, or listening, and 13 having to do with asthma management (see Tables 2 and 3). Respondents also answered four multiple choice questions about their experience regarding patients' concerns, patients' disease awareness, the possibility of achieving asthma control, and the applicability of long-term asthma treatment.

Statistical analysis

For analysis, the 5 point Likert scale responses were divided into two categories: very likely (always or often) and not very likely (sometimes, seldom, never). Descriptive statistics (percentage and frequency), Chi-square and adjusted multivariate logistic regression for confounders (country, gender, specialist, and age) were used to analyze these responses. SPSS software was used for statistical analysis. Multiple choice responses were analyzed using descriptive statistics. Also, comparisons between physicians who did and did not complete the survey were performed. Cronbach-alpha

analysis on the 24 communication strategies was calculated, as a post-hoc analysis. A p value <0.05 was considered to be statistically significant for all tests.

RESULTS

586 surveys were collected, but only 304 were fully completed. Analysis was based only on the fully completed surveys. Physicians who did and did not fully complete the survey were similar in gender and specialist's status. But, physicians that fully completed surveys were younger than those who did not (41.4, 95% CI 40.0 - 42.8) vs (45.2, 95% CI 43.5 - 47.0). Half of the respondents were male and the average age was 41.42 (± 12.26) years. Most of the participating physicians were from Ecuador (62.2%), with the rest from Argentina (20.7%) and Peru (17.1%). Specialists constituted 53.3% of the respondents (Table 1).

Table 2 shows descriptive analysis of participants' self-rating on the use of 24 communication strategies, all together and by country. Participants rated themselves using a 5-point scale (always, often, sometimes, seldom, never), and responses were then classified as "very likely to" (always or often) and "not very likely to" (sometimes, seldom or never). The 24 strategies were classified as having to do with education, listening, or asthma management. A high percentage (>85) of the surveyed physicians rated themselves very likely to use each of the 4 listening-related strategies. A high percentage also rated themselves very likely to use 4 of the 7 education-related strategies: offering adequate information, informing patient about risks associated with asthma, using simple language and giving all possible information about asthma. A lower percentage (71.4) rated themselves very likely to provide oral and written

personalized information, and a strikingly low percentage (29.9) rated themselves very likely to provide supporting educational material.

For the management-related strategies, a high percentage of participants rated themselves very likely to involve patients in choosing a treatment plan (91.8), strengthen patients' positive behavior (90.8), explain side effects (87.2), provide prescriptions that can be integrated into patient's day (86.8) and try to keep control over patients (85.6). Slightly lower percentages rated themselves very likely to want to be consulted before treatment changes (84.2), provide spoken and written prescriptions (82.6), involve patients' relatives (81.6), provide a written action plan (80.3), simplify the therapeutic regimen (76.0), and prefer mono-administration drugs (75.3). Relatively low percentages of participants reported themselves very likely to involve patients in management strategies (64.8) and ask the patient to repeat their prescription (49.3).

Several significant differences were observed when responses were compared by country. Descriptive statistical analysis showed that more percentage of Ecuadorian physicians reported themselves very likely to want to be consulted before any change in treatment (87.3) and more Peruvian physicians reported themselves to be very likely to investigate how patients represents their disease to themselves (98.1) and to inform patients about potential risks (96.2). The percentage of physicians reporting that they are very likely to try to keep control of patients and to ask the patient many questions also varied among these three countries, with Argentina having the highest (95.2 and 90.5) and Peru the lowest (73.1 and 69.2).

Participants' self-rating on the use of communication strategies was also evaluated using adjusted multivariate logistic regression analysis (Table 3), which again showed county-based differences. Argentinian participants were found to have a lower chance of reporting themselves to be very likely to investigate how patients represent the disease to themselves (OR 0.05, CI 95% 0.01 - 0.45), to provide both spoken and written super-imposable prescriptions (OR 0.18, CI 95% 0.04 - 0.72), to provide the patient with both oral and written personalized information (OR 0.35, CI 95% 0.13 - 0.94), and to involve the patient in the asthma management strategies (OR 0.42, CI 95% 0.18 - 0.99). Argentinian participants were also found to have a higher chance of rating themselves very likely to prefer mono-administration drugs (OR 2.96, CI 95%1.11 - 7.94), to try to keep control over the patient (OR 11.67, CI 95% 2.93 - 46.54), to ask the patient many questions (OR 6.43, CI 95% 2.19 - 18.94), and to encourage the patient to express doubts, expectations, fears (OR 3.25, CI 95% 1.03 - 10.31). Ecuadorian were also found to have a higher chance of reporting themselves very likely to ask the patient many questions (OR 2.67, CI 95% 1.21 - 5.89).

When responses were evaluated by gender, several significant differences were observed. Descriptive statistics showed that more percentage of male participants reported being very likely to investigate how patients portray the disease to themselves (96.9 vs 81.9) and to try to maintain control over the patient (91.3 vs 81.9), and that more female participants reported being very likely to listen to patients (100 vs 96.9). Adjusted multivariate logistic regression showed that female participants had less chance of reporting themselves to be very likely to investigate how patients portray the disease (OR 0.18, CI 95% 0.06 - 0.56) and to maintain control over the patient (OR 0.41, CI 95% 0.18 - 0.95) (Table 3).

Evaluating responses on the basis of length of practice showed that significantly more percentages of participants with less than 5 years of practice reported being very likely to supply educational material to patients (33.3 vs 14.5), and significantly more participants with more than 5 years' practice reported being very likely to frighten patients by describing asthma-related risks (38.2 vs 20.9). Evaluating responses on the basis of age, using regression analysis, showed that older participants had a lower chance of reporting themselves very likely to inform the patient about potential risks associated with the disease (OR 0.92, CI 95% 0.87 - 0.97), explain to the patient the possible side effects of drugs (OR 0.97, CI 95% 0.93 - 0.99), and ask the patient to repeat the prescriptions together (OR 0.97, CI 95% 0.95 - 0.99) (Table 3).

There were no significant differences between GPs and specialists regarding communication strategies when responses were analyzed by descriptive statistics. However, in the regression analysis, specialists were found to have a higher chance of reporting themselves very likely to involve the patient in the asthma management strategies (OR 2.18, CI 95% 1.10 - 4.30), and a lower chance of reporting themselves very likely to try to keep control over patient (OR 0.34, CI 95% 0.14 - 0.80) (Table 3).

Participants' responses to the multiple choice questions about their experience regarding patients' concerns, patients' disease awareness, the possibility of achieving asthma control, and the applicability of long-term asthma treatment were analyzed using descriptive statistics (Table 4). Likelihood of lifelong, continuous treatment was the answer most often chosen as the patients' biggest concern, followed by side effects, potential drug dependency and difficulty in taking drugs. Need for long-term therapy

was most often chosen as the thing patients are least aware, followed by bronchial obstruction, disease chronicity and overall asthma symptoms. No significant differences were observed when responses to these two questions were evaluated by country. However, when evaluated by practice area (GP or specialist), a significant difference was observed in the percentage that chose the need for long-term therapy as the thing that concerns patients most (44.4 of GPs vs 53.7 of specialists) (Table 5).

In response to the question about the possibility of achieving asthma control, one quarter of participants (25.3%) chose asthma control can be achieved in most patients, regardless of disease severity, and about half (54.3%) chose control can be achieved in almost all patients, regardless of severity. The remaining responses, that control is possible only in patients with mild asthma and only in the most scrupulous patients, were each chosen by only 10.2% of respondents. Significant differences were observed when responses to this question were evaluated by country, but regardless of country the majority of respondents chose either the "most patients" or "almost all patients" response (Table 4). Significant differences were also observed when responses to this question were evaluated by practice area, with 61.7% of specialists responding that control is possible in almost all patients compared to 45.8% of GP's (Table 5).

Regarding the applicability of long-term treatment, almost half of all respondents (47%) responded that long-term asthma treatment is a strategy applicable to most patients, while one quarter each responded that it is applicable only to some patients, regardless of disease severity (25.7%), and that it is applicable to some patients, depending on their characteristics (27.3%). Significant differences were observed when responses to this question were analyzed by length of practice, or by practice area. Participants with less

than 5 years of practice were more likely to respond that long-term asthma therapy an applicable strategy for most patients compared to those with more than 5 years' practice (50.2% vs 32.7%, $p<0.01$). Specialists were also more likely to choose this response than GPs (54.3% vs 38.7%, Table 5).

DISCUSSION

The results of this survey of Latin American physicians show that, overall, the majority of the participants reported themselves to be very likely to use almost all of the communication strategies listed. Many of those strategies support a patient-centric approach to care, which is characterized by more active patient participation in the medical dialogue and less verbal dominance by the physician (14). Listening is particularly important to a patient-centric approach. A recent study found that asthma patients put a high value on being listened to carefully (15). While a high percentage of all participants in the present study reported themselves to be very likely to listen to the patient, we found that a significantly higher percentage of female physicians reported using this strategy compared to males, and that a lower percentage of female physicians reported the desire to try to control the patient. These findings are in agreement with previous studies comparing communication styles between female and male physicians (13, 14) which found that female physicians are more patient-centered (13) and display less control or dominance than male physicians (14).

Asthma patients have also been shown to place high value on being involved in treatment decisions (10, 17). Furthermore, it has been reported that not involving the patient in the therapeutic plan can lead to poor treatment adherence and difficulty in learning correct asthma management (12). The great majority of the physicians in the

present study reported themselves to be very likely to involve the patient in the choice of treatment plan, with no differences by country, gender, age or practice area. A lower percentage (but still a majority) of participants said they were very likely to involve the patient in the asthma management strategies. Regression analysis showed that Argentinian physicians have a significantly lower chance of using this strategy compared to physicians from Peru and Ecuador, and that specialists have a higher chance of using this strategy compared to GPs.

Several studies, including ours, suggest that specialists are better able to manage asthma patients than GPs. Laforest et al reported that GPs lag behind specialists with regard to asthma management (18). Results from a study comparing asthma diagnoses made by GPs and specialists suggest that GPs tend to underestimate the severity of asthma (19). GPs have also been reported to be less likely than specialists to provide written asthma information to asthma patients (15). In addition to the difference between specialists and GPs in involving patients in asthma management, we also found that specialists have a lower chance of trying to keep control of patients. Moreover, we found that a higher percentage of specialists think asthma control can be achieved in almost all patients and that long-term therapy is applicable for most asthma patients. Altogether these results suggest that specialists use better treatment decision making strategies, and have a more flexible relationship with patients.

Our study revealed several differences in self-reported use of communication strategies among physicians from Argentina, Ecuador and Peru. Cultural differences between these different countries, including differences in physician training, in the prevalence of medical malpractice law suits, and in the health care system, may explain the

differences in physician communication style. Other studies have shown differences in physician-patient communication by geographical region. The percentage of asthma patients who receive a written action plan for asthma management seems to vary widely by geographical region, from 74% in the US, to 42% in Latin America, to 26% in the Asia-Pacific region. The percentage of asthma patients whose doctors regularly use asthma questionnaires as a tool to assess asthma was 25% in the US compared to 7% in Europe (2,22).

Since the present study was based on the same survey used in a previous Italian study (12), the results from the two studies can be directly compared. This comparison uncovered several differences between self-reported use of communication strategies between Latin American and Italian physicians. In many cases a higher percentage of Latin American physicians rated themselves very likely to use a given strategy than Italian physicians. This included investigating how the patient represents the disease to himself (90.1% vs 79.6%); encouraging patients to express doubts, expectations, fears (88.5% vs 71.5%); providing a written action plan (80.3% vs 61.6%); providing personalized information about the disease (71.4% vs 49.9%); providing prescriptions that can be integrated into patient's day (86.6% vs 73.5%); keeping control of patients (86.5% vs 73%) and involving relatives (81.6% vs 45%). The biggest difference between Latin American and Italian physicians was regarding explaining side effects of drugs, with 87.2% of Latin American physicians reporting themselves to be very likely to use this strategy compared to just 18.6% of Italian physicians. But 39.4% of Italian physicians reported themselves to be very likely to frighten patients by describing potential risks, compared to 24% of Latin American physicians.

More Latin-American physicians reported themselves to be very likely to use the communication strategies in this survey than Italian physicians, suggesting that physician-patient communication is better in Latin America. Both cultures are very different, and it could deeply influence the health care system the physicians practice in, physician training, and patient preferences. Our results might be expected to lead to better asthma control rates in Latin America. However, the AIM Survey did not find differences in asthma control between Latin America and Europe (2).

Approximately 50% of the respondents in this survey believed that asthma patients are least aware of the need for long-term therapy. The fact that only 38% of Latin-Americans patients use their daily controller medication as prescribed (2) supports this belief. Educating asthma patients about the necessity of using long-term control medications, and of using them appropriately, could decrease uncontrolled asthma. Only approximately 50% of the respondents in this survey believe that long-term asthma therapy is an applicable strategy for most patients. Perhaps this low level of confidence in long-term therapy is transmitted from physicians to patients and is partially responsible for the low level of treatment adherence observed in Latin America.

The present study had some limitations. The validity and reliability of the original Italian language version of the survey have not been reported, but the selection of the items was developed using a rigorous method (12). The aims of the present study did not include questionnaire validation. Consequently, validity and reliability still need to be established. As a post-hoc analyses, we performed Cronbach-alpha analysis on the 24 communication strategies, with a result of 0.83 when considering the full 5 point scale. Another drawback to this study is that the respondents were physicians who were

attending educational meetings; thus they were more likely to have updated medical knowledge than physicians who do not attend continuing medical education meetings. Furthermore, there was a possibility that physicians respondents might have been too embarrassed to answer some of the questions. Results of this study should also be validated using a larger study population.

CONCLUSIONS

A high percentage of the Latin American physicians who participated in this study rated themselves favorably on the use of good communication strategies when managing asthma patients and most felt that asthma control can be achieved in some or most patients. Differences were observed, however, between male and female physicians, between GPs and specialists, between older and younger physicians, and among physicians from Argentina, Ecuador and Peru. Further study will be required to determine the basis of those differences and the effect on outcome for patients.

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DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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Table 1. Demographic profile of participants.

Demographic data	n	%
Country		
Argentina	63	**20.7**
Ecuador	189	**62.2**
Perú	52	**17.1**
Area of Practice		
General Physician	142	**46.7**
Specialist	162	**53.3**
Gender		
Male	127	**50.0**
Female	127	**50.0**

Table 2. Communication strategies, stratified by country and in total.

		COMMUNICATION STRATEGIES	ARGENTINA		ECUADOR		PERU		TOTAL		X^2
			N	% Very likely to	N	% Very likel y to	N	% Very Likel y to	N	% Very Likel y to	P
L	**1**	I investigate how the patient represents the disease to himself (which signs he gives importance to, what worries him, what makes him feel ill)	48	**76.2**	175	**92.6**	51	**98.1**	274	**90.1**	**<0.01**
E	**2**	I offer adequate information to the patient	63	**100.0**	183	**96.8**	50	**96.2**	296	**97.4**	0.33
E	**3**	I supply the patient with supporting educational material	15	**23.8**	62	**32.8**	14	**26.9**	91	**29.9**	0.35
E	**4**	I inform the patient about the potential risks associated with the disease	54	**85.7**	181	**95.8**	50	**96.2**	285	**93.8**	**0.01**
M	**5**	I provide	54	**85.7**	163	**86.8**	40	**88.5**	257	**86.8**	0.91

		prescriptions which can be integrated into the patient's day	4		4		6		4		
M	**6**	I provide both spoken and written super-imposable prescriptions	4 8	**76.2**	15 6	**82.5**	4 7	**90.4**	25 1	**82.6**	0.14
M	**7**	I explain to the patient the possible side effects of drugs	5 1	**81.0**	16 7	**88.4**	4 7	**90.4**	26 5	**87.2**	0.23
M	**8**	I ask the patient to repeat the prescriptions together	3 3	**52.4**	92	**48.7**	2 5	**48.1**	15 0	**49.3**	0.86
M	**9**	I simplify, when possible, the therapeutic regimen	4 8	**76.2**	14 0	**74.1**	4 4	**84.6**	23 2	**76.3**	0.28
M	**1 0**	I prefer drugs which require mono-administration	5 4	**85.7**	13 9	**73.5**	3 6	**69.2**	22 9	**75.3**	0.08
M	**1 1**	I provide a written action plan	5 7	**90.5**	14 6	**77.2**	4 1	**78.8**	24 4	**80.3**	0.07
M	**1 2**	I involve the patient in the choice of the treatment plan	5 7	**90.5**	17 3	**91.5**	4 9	**94.2**	27 9	**91.8**	0.75

M	**13**	I try to strengthen the patient's positive behaviours	57	**90.5**	172	**91.0**	47	**90.4**	276	**90.8**	0.99
M	**14**	I involve patient relatives when needed	45	**71.4**	159	**84.1**	44	**84.6**	248	**81.6**	0.06
E	**15**	I provide the patient with both oral and written personalized information about the disease	39	**61.9**	136	**72.0**	42	**80.8**	217	**71.4**	0.08
M	**16**	I try to keep control over my patient (visits, diary)	60	**95.2**	165	**87.3**	38	**73.1**	263	**86.5**	**<0.01**
M	**17**	I want to be consulted before any treatment change	45	**71.4**	168	**88.9**	43	**82.7**	256	**84.2**	**<0.01**
E	**18**	I frighten the patient by describing asthma-related risks	15	**23.8**	52	**27.5**	6	**11.5**	73	**24.0**	0.08
E	**19**	I try to use clear and simple language	63	**100.0**	184	**97.4**	51	**98.1**	298	**98.0**	0.42
L	**20**	I listen to the patient	60	**95.2**	188	**99.5**	51	**98.1**	299	**98.4**	0.07
L	**2**	I ask the patient	5	**90.5**	15	**83.1**	3	**69.2**	25	**82.2**	**0.01**

	1	many questions	7		7		6		0		
M	**2**	I try to involve the	3	**52.4**	12	**68.3**	3	**67.3**	19	**64.8**	0.07
	2	patient in asthma	3		9		5		7		
		management									
		strategies									
L	**2**	I encourage the	5	**90.5**	17	**89.9**	4	**80.8**	26	**88.5**	0.16
	3	patient to express	7		0		2		9		
		doubts, expectations,									
		fears									
E	**2**	I give the patient all	5	**81.0**	16	**86.8**	4	**84.6**	25	**85.2**	0.53
	4	possible information	1		4		4		9		
		about asthma and its									
		therapy									

Cronbach's Alpha = 0.83 (24-itens)

L: strategy having to do with listening; E: strategy having to do with patient education; M: strategy having to do with patient management

Table 3. Multivariate association with each communication questions: very likely to x not very likely to as reference) adjusting for respondents' country, gender, area of practice and age.

COMMUNICATION STRATEGIES			LEVEL	ODDS RATIO (95% CI)	P VALUE
L	1	I investigate how the patient represents the disease to himself	Argentina	0.05 (0.01 - 0.45)	<0.01
			Ecuador	0.28 (0.03 - 2.40)	NS
			Female	0.18 (0.06 - 0.56)	<0.01
			Specialist	1.76 (0.43 - 7.17)	NS
			Age	1.03 (0.99 - 1.08)	NS
E	2	I offer adequate information to the patient	Argentina	NS	NS
			Ecuador	0.98 (0.09 - 10.23)	NS
			Female	1.87 (0.28 - 12.52)	NS
			Specialist	0.63 (0.08 - 4.76)	NS

			Age	1.09 (0.97 - 1.22)	NS
E	3	I supply the patient with supporting educational material	Argentina	1.00 (0.38 - 2.60)	NS
			Ecuador	1.41 (0.62 - 3.21)	NS
			Female	0.68 (0.38 - 1.28)	NS
			Specialist	0.90 (0.46 - 1.77)	NS
			Age	1.01 (0.99 - 1.04)	NS
E	4	I inform the patient about the potential risks associated with the disease	Argentina	0.18 (0.01 - 1.13)	NS
			Ecuador	2.91 (0.45 - 18.80)	NS
			Female	1.50 (0.47 - 4.82)	NS
			Specialist	10.28 (0.99 - 106.85)	NS
			Age	0.92 (0.87 - 0.97)	<0.01
M	5	I provide prescriptions which can be integrated into the patient's day	Argentina	1.01 (0.32 - 3.24)	NS

			Ecuador	1.00 (0.36 - 2.80)	NS
			Female	0.84 (0.40 - 1.79)	NS
			Specialist	0.93 (0.39 - 2.25)	NS
			Age	1.00 (0.97 - 1.04)	NS
M	6	I provide both spoken and written super-imposable prescriptions	Argentina	0.18 (0.04 - 0.72)	<0.05
			Ecuador	0.41 (0.11 - 1.47)	NS
			Female	0.87 (0.44 - 1.74)	NS
			Specialist	2.44 (0.96 - 6.21)	NS
			Age	0.99 (0.96 - 1.02)	NS
M	7	I explain to the patient the possible side effects of drugs	Argentina	0.35 (0.09 - 1.30)	NS
			Ecuador	0.83 (0.25 - 2.73)	NS
			Female	0.79 (0.36 - 1.70)	NS

			Specialist	2.50 (0.89 - 7.01)	NS
			Age	0.97 (0.93 - 0.99)	<0.05
M	8	I ask the patient to repeat the prescriptions together	Argentina	1.43 (0.63 - 3.26)	NS
			Ecuador	0.83 (0.40 - 1.71)	NS
			Female	0.89 (0.53 - 1.52)	NS
			Specialist	0.90 (0.48 - 1.67)	NS
			Age	0.97 (0.95 - 0.99)	<0.05
M	9	I simplify, when possible, the therapeutic regimen	Argentina	0.33 (0.11 - 1.03)	NS
			Ecuador	0.72 (0.27 - 1.94)	NS
			Female	1.64 (0.86 - 3.10)	NS
			Specialist	2.16 (0.95 - 4.90)	NS
			Age	1.02 (1.00 - 1.05)	NS

M	10	I prefer drugs which require mono-administration	Argentina	2.96 (1.11 - 7.94)	<0.05
			Ecuador	1.25 (0.58 - 2.68)	NS
			Female	1.23 (0.67 - 2.24)	NS
			Specialist	0.89 (0.45 - 1.74)	NS
			Age	1.01 (0.99 - 1.04)	NS
M	11	I provide a written action plan	Argentina	2.34 (0.73 - 7.53)	NS
			Ecuador	0.73 (0.30 - 1.79)	NS
			Female	1.21 (0.62 - 2.36)	NS
			Specialist	0.93 (0.45 - 1.94)	NS
			Age	0.99 (0.96 - 1.02)	NS
M	12	I involve the patient in the choice of the treatment plan	Argentina	0.28 (0.04 - 1.74)	NS
			Ecuador	0.74 (0.15 - 3.58)	NS

			Female	1.81 (0.69 - 4.74)	NS
			Specialist	2.63 (0.68 - 10.16)	NS
			Age	1.01 (0.97 - 1.05)	NS
M	13	I try to strengthen the patient's positive behaviours	Argentina	1.17 (0.30 - 4.59)	NS
			Ecuador	1.00 (0.29 - 3.45)	NS
			Female	1.36 (0.53 - 3.47)	NS
			Specialist	0.48 (0.16 - 1.43)	NS
			Age	1.01 (0.97 - 1.05)	NS
M	14	I involve patient relatives when needed	Argentina	0.39 (0.13 - 1.16)	NS
			Ecuador	0.93 (0.34 - 2.55)	NS
			Female	1.04 (0.53 - 2.05)	NS
			Specialist	1.15 (0.49 - 2.71)	NS

			Age	1.00 (0.97 - 1.03)	NS
E	15	I provide the patient with both oral and written personalized information about the disease	Argentina	0.35 (0.13 - 0.94)	<0.05
			Ecuador	0.54 (0.21 - 1.36)	NS
			Female	1.12 (0.62 - 2.03)	NS
			Specialist	0.88 (0.43 - 1.80)	NS
			Age	0.99 (0.96 - 1.01)	NS
M	16	I try to keep control over my patient (visits, diary)	Argentina	11.67 (2.93 - 46.54)	<0.001
			Ecuador	1.87 (0.78 - 4.53)	NS
			Female	0.41 (0.18 - 0.95)	<0.05
			Specialist	0.34 (0.14 - 0.80)	<0.05
			Age	1.01 (0.98 - 1.04)	NS
M	17	I want to be consulted before any treatment change	Argentina	0.48 (0.17 - 1.38)	NS

			Ecuador	2.36 (0.87 - 6.40)	NS
			Female	1.14 (0.55 - 2.36)	NS
			Specialist	2.15 (0.80 - 5.74)	NS
			Age	0.97 (0.94 – 1.00)	NS
E	18	I frighten the patient by describing asthma-related risks	Argentina	2.27 (0.76 - 6.81)	NS
			Ecuador	2.01 (0.76 - 5.33)	NS
			Female	1.47 (0.79 - 2.75)	NS
			Specialist	0.71 (0.34 - 1.51)	NS
			Age	0.98 (0.96 - 1.01)	NS
E	19	I try to use clear and simple language	Argentina	NS	NS
			Ecuador	0.68 (0.07 - 6.45)	NS
			Female	0.45 (0.077 - 2.67)	NS

			Specialist	1.20 (0.19 - 7.35)	NS
			Age	1.03 (0.95 - 1.12)	NS
L	20	I listen to the patient	Argentina	NS	NS
			Ecuador	NS	NS
			Female	NS	NS
			Specialist	NS	NS
			Age	0.98 (0.90 - 1.08)	NS
L	21	I ask the patient many questions	Argentina	6.43 (2.19 - 18.94)	<0.01
			Ecuador	2.67 (1.21 - 5.89)	<0.05
			Female	1.36 (0.68 - 2.70)	NS
			Specialist	0.63 (0.30 - 1.34)	NS
			Age	1.01 (0.98 - 1.04)	NS

M	22	I try to involve the patient in asthma management strategies	Argentina	0.42 (0.18 - 0.99)	<0.05
			Ecuador	1.18 (0.54 - 2.56)	NS
			Female	0.76 (0.44 - 1.31)	NS
			Specialist	2.18 (1.10 - 4.30)	<0.05
			Age	1.00 (0.97 - 1.02)	NS
L	23	I encourage the patient to express doubts, expectations, fears	Argentina	3.25 (1.03 - 10.31)	<0.05
			Ecuador	1.89 (0.73 - 4.88)	NS
			Female	1.48 (0.65 - 3.35)	NS
			Specialist	0.48 (0.19 - 1.20)	NS
			Age	1.00 (0.96 - 1.03)	NS
E	24	I give the patient all possible information about asthma and its therapy	Argentina	0.63 (0.20 - 2.01)	NS
			Ecuador	0.84 (0.28 - 2.52)	NS

		Female	0.82 (0.38 - 1.75)	NS
		Specialist	0.67 (0.27 - 1.69)	NS
		Age	1.01 (0.98 - 1.05)	NS

*Logistic regression, variables in model: country, gender, practice area and age. Argentina and Ecuador x Peru (reference); Female x Male (reference); Specialist x Non-specialist (reference); age. NS: non-significant. L: Listening strategies, M: Management strategies, and E: Education strategies.

Table 4. Respondents' experience of patient concerns and disease awareness and asthma control and therapy by country and in total.

		ARGENTINA		ECUADOR		PERU		TOTAL		X^2
		N	%	N	%	N	%	N	%	P
In your experience, what causes the most concern for the patient?	The fact of permanent care	42	**66.7**	89	**47.1**	29	**55.8**	160	**52.6**	0.169
	Side effects of drugs	9	**14.3**	45	**23.8**	8	**15.4**	62	**20.4**	
	Addiction to asthma drugs	6	**9.5**	35	**18.5**	8	**15.4**	49	**16.1**	
	Drugs are complicated to take	6	**9.5**	20	**10.6**	7	**13.5**	33	**10.9**	
In your experience, what are asthma patients least aware of?	Chronicity of asthma	12	**19.0**	44	**23.3**	8	**15.4**	64	**21.1**	0.155
	Need for long term therapy	33	**52.4**	84	**44.4**	33	**63.5**	150	**49.3**	
	Symptoms	6	**9.5**	9	**4.8**	2	**3.8**	17	**5.6**	
	Level of bronchial obstruction	12	**19.0**	52	**27.5**	9	**17.3**	73	**24.0**	
In your	In most	6	**9.5**	61	**32.3**	10	**19.2**	77	**25.3**	**0.001**

experience, asthma control can be achieved:	patients, regardless of asthma severity									
	In almost all patients, regardless of asthma severity	48	**76.2**	86	**45.5**	31	**59.6**	165	**54.3**	
	In patients with mild asthma	3	**4.8**	23	**12.2**	5	**9.6**	31	**10.2**	
	Particularly in more scrupulous patients	6	**9.5**	19	**10.1**	6	**11.5**	31	**10.2**	
In your experience, long term asthma therapy:	Is an applicable strategy for most patients	36	**57.1**	78	**41.3**	29	**55.8**	143	**47.0**	0.056
	Is an applicable strategy for some patients,	9	**14.3**	57	**30.2**	12	**23.1**	78	**25.7**	

	regardless of asthma severity								
	Is an applicable strategy for some patients, depending on personal characteristics	18	**28.6**	54	**28.6**	11	**21.2**	83	**27.3**

Table 5. Respondents' experience of patient concerns and disease awareness and asthma control and therapy by practice area

		GP		SPECIALIST		χ^2
		N	%	N	%	P
In your experience, what is of most concern to the patient?	The fact of permanent care	75	**52.8**	85	**52.5**	0.390
	Side effects of drugs	31	**21.8**	31	**19.1**	
	Addiction to drugs for asthma	25	**17.6**	24	**14.8**	
	Drugs are complicated to take	11	**7.7**	22	**13.6**	
In your experience, what are asthma patients least aware of?	Chronicity of asthma	34	**23.9**	30	**18.5**	0.034
	Need for long term therapy	63	**44.4**	87	**53.7**	
	Symptoms	4	**2.8**	13	**8.0**	
	Level of bronchial obstruction	41	**28.9**	32	**19.8**	
In your experience, asthma control can be achieved:	In most patients, regardless of asthma severity	46	**32.4**	31	**19.1**	0.028
	In almost all patients, regardless of asthma severity	65	**45.8**	100	**61.7**	
	In patients with mild asthma	15	**10.6**	16	**9.9**	
	Particularly in more scrupulous patients	16	**11.3**	15	**9.3**	
In your	Is an applicable strategy for	55	**38.7**	88	**54.3**	0.005

experience, long	most patients				
term asthma	Is an applicable strategy for	48	**33.8**	30	**18.5**
therapy:	some patients, regardless of asthma severity				
	Is an applicable strategy for some patients, depending on personal characteristics	39	**27.5**	44	**27.2**