An Empirical Study of the Moderator Effect of Entrepreneurial Orientation on the Relationship between Environmental Turbulence and Innovation Performance in Five-star Hotels in Jordan

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Abstract

Purpose: This paper aims to examine the Moderator Effect of Entrepreneurial Orientation on the relationship between Environmental Turbulence and Innovation Performance in five-star hotels in Jordan

Design / methodology: The study involves a questionnaire-based survey of managers and heads of sections from five star hotels in Amman capital at Jordan. A total of (135) surveys from (13) five star hotels were valid for analysis towards achieving the objectives of this study. Multiple regression analysis and structural equation modeling was performed to understand the relationship and effects among study variables.

Findings: The results show that Environmental Turbulence (Environmental Dynamism, Environmental Complexity and Environmental Predictability) has a significant positive effect on Innovation Performance at five star hotels in Amman capital of Jordan. Entrepreneurial Orientation, also, plays a positive indirect role in the relationship between Environmental Turbulence and Innovation Performance at five star hotels in Amman capital of Jordan.

Research limitation: This study only covered an incommodious part in the field of strategic management and organization theory. Particularly, it displays the important role of Entrepreneurial Orientation in the relationship between Environmental Turbulence and Innovation Performance.

Research implications: The study helps managers and decision makers to understand the role of Entrepreneurial Orientation to increase Innovation Performance and the effect of Environmental Dynamism, Complexity and Predictability.

Originality / value: The study explores the researcher's perspective orientations about environmental turbulence and Entrepreneurial Orientation and their role in increasing and maintenance of innovation performance.

Keywords: environmental turbulence, entrepreneurial orientation, innovation performance, five star hotels and Jordan

1. Introduction

Tourism is described as the industry of the future. It is one of the three most important industries which is the driving force of the economics of services industry in the twenty-first century. The tourism industry is unique in that it has the fastest growth and development when compared to all other industries. This in turn provides them with comparative advantages and makes them more competitive.

Tourism does not only impacts economically; it also plays an important role in various aspects of society. Indeed, tourism has a social importance of how it plays an important role in improving the living conditions of the population through increased income and employment. It also encourages the integration of local communities and expanding people's participation in tourism activities. The process of tourism planning also encourages greater contributions of local community members in planning and tourism development.

As a result of Jordanian economy attend the fundamental shifts in journey development and future orientations toward Tourism sector through different stages of development that regarded a long term motivated for economic growth in Jordan. While the Jordanian National Strategy for Tourism (2011 to 2015) clarifies that the most important strategic objective is establishing a modern and sophisticated tourism industry which meets the highest international standards and specifications.

Based on the above the tourism sector in Jordan is facing a variety of challenges despite the stable growth. Current challenges arose in the hotel industry in Jordan, despite its growth, as a result of some factors, whether internal or external, which affect the performance. For instant, intense competition is considered an external factor impacting the performance. An indication shows that the basic problem that is linked to the Jordanian Hospitality business is the concurrence happening among hotels that are star-rated and those that are not. Such concurrence happens due to extra provision of hotels, hotel evolvement regulations and the standards of the service. Thus, in order to survive in the business competition and qualify the operational, the five star hotels in Jordan should present good service with high quality.

There's a current competition scene taking place, as well as a rapid revolution of information technology with the globalization of the market, presents huge challenges facing business organizations in the market. Business organizations in the globalization age are keen on accomplishing a broader level of producing or the accumulating of tangible and intangible assets to create strategic competencies. Accomplish high level of performance and superiority on the competitor's competencies and adaptation with cumulative dynamism of competitive environments needed from business organizations to take into consideration more on their external competitive environment to render more appended customer value, firm distinction and extendibility, and to take into consideration more on environmental turbulence. Therefore environmental turbulence according to Volberda & Van Bruggen (1997: 137) is a dynamic, unpredictable, expanding, fluctuating environment; it is an environment in which the components are marked by change.

There's a label that has been used as a reference to the organizations entrepreneurial attitude and conduct of manners in an intense competitive surrounding; the label is "organizations entrepreneurial orientation". The first model of entrepreneurial orientation which was presented by researchers was composed of five dimensions – innovativeness, risk taking, autonomy, proactiveness and competitive aggressiveness. Business organizations must handle these dimensions in order to maintain their position and grow in the current increasingly dynamic and competitive environment.

Consequently, the value of this *research* is great for the industry of tourism in Jordan, and specifically hotels that are ranked as five-star, because this sector of the industry adds a great ratio to the gross domestic product (GDP). And as of the recognition of environmental turbulence is a main element in the strategic success through developing performance, the main purpose of this study is to test the moderator effect of entrepreneurial orientation on the relationship between environmental turbulence and innovation performance in hotels of five star ranking in Jordan. This study took place in five star hotels; because of the different services provided, the environmental turbulence was taken under account. It also zooms in specifically on environmental turbulence: Dynamism (Intensity of Changes and Frequency of Changes), Complexity (Number and Relatedness of Elements) and Predictability (availability of Information and Predictability of Changes) as well as Entrepreneurial Orientation and Innovation Performance.

1.1 Objective of the Study

The aim of this study is therefore to empirically test the moderator effect of entrepreneurial orientation on the relationship between environmental turbulence and innovation performance in five-star hotels in Jordan through:

1) Examine the direct effect of Environmental Turbulence (Environmental Dynamism, Environmental Complexity and Environmental Predictability) on Innovation Performance in five-star hotels in Jordan.

2) Investigate the indirect effect of Environmental Turbulence (Environmental Dynamism, Environmental Complexity and Environmental Predictability) on Innovation Performance via Entrepreneurial Orientation in five-star hotels in Jordan.

1.2 Significance of the Study

The significance of the current study stems from the limitation of Arab studies that addressed the environmental turbulence and entrepreneurial orientation, highlights the nature of environmental turbulence in the tourism sector, especially five star hotels, and contributes to develop a working mechanism of five-star hotels and to maintain continuity. Also, this study derives its empirical significance from helping employees in the hospitality tourism

sector to understand the importance of both environmental turbulence and entrepreneurial orientation in achieving high performance levels.

2. Literature Review and Hypotheses Development

2.1 Environmental Turbulence

As expressed by Boyne and Meier (2009: 801) Turbulence is one factor of general models of the task environment that constrains organizational behavior and performance. While Ansoff and McDonnell (1990) defined 'environmental turbulence' as a group measure of the changeability and predictability of the firm's environment. On the other hand, Vorhies (1998) focused on the definition of environmental turbulence in dynamism involving rapid, unexpected change in the organization's environmental sub dimensions such as technology, customers, competitors, government regulations and new product launches. While, Smith, et..al. (1999) defines environmental turbulence as a function of the complexity, dynamism and uncertainty in that environment. Volberda & Van Bruggen (1997: 137-138) determine the three dimension of environmental turbulence as illustrative in Figure 1.

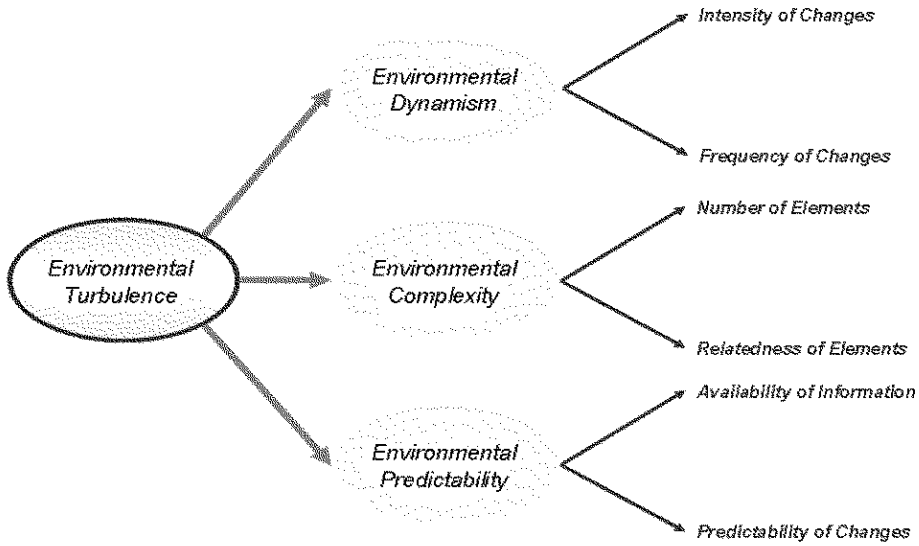

Figure 1. The Volberda & Van Bruggen dimension of environmental turbulence

2.1.1 Environmental Dynamism

Environmental dynamism represents the rate of change in an environment. For example, Wijbenga and van Witteloostuijn (2007) defined environmental dynamism as the rate at which the preferences of customers and the services of organizations change over time. Li and Simerly (1998) refer to the rate of change and the level of factors instability within an environment. Iansity (1995) suggests that emergent levels of environmental dynamism lead to more uncertainty in service development, which also reduces the predictability and effects of change. Volberda & Van Bruggen (1997: 138) state that there is two measurements of environmental dynamism which are called Intensity of Changes and Frequency of Changes.

2.1.2 Environmental Complexity

Complexity was defined by many researchers as one of the crucial factors of environments. Those researchers have also formulated different definitions of environmental complexity. Child (1972) described environmental complexity as heterogeneity and a range in the activities that are highly relevant to an organization's operations. Narayanan & Nath (1993) explained that environmental complexity is a set of important environmental factors that affect the organization. Cannon & John (2007: 299) confirm that the definition of environmental complexity composed three subdimensions. First of all, complexity is a function of the number of environmental components which the firm must include within it. Second, given some number of environmental components; complexity is a function of heterogeneity, dissimilarity, or diffusion among them. Third, given the presence of particular environmental components, complexity is a function of the sophisticated required interacting effectively with them. Black and Farias (1997) adopt a different approach to defining complexity, they affirm that complexity has five dimension: firm density (number of companies in the market), information density (amount of information in the market), clarity of information (embedded in the information flow of the system), path dependency (degree to which understanding and

use of the information is dependent on previous use of similar information) and response time (rate of information dispersal between receiving and using it). According to Sia, et..al (2004) environmental complexity has higher uncertainty. Robbins & Judge (2013: 533) mention that the environmental complexity is the degree of heterogeneity and concentration among environmental factors.

2.1.3 Environmental Predictability

Environmental Predictability as reflected by Thompson (1967: 85) represents the extent to which cause and effect relationships concerning environmental elements are incomplete. Child (1972) describes predictability as the degree of irregularity in the overall pattern of change. Volberda & Van Bruggen (1997: 139) indicates that when changeovers of factors within environmental components are linear, or cyclical, or both, management can generalize future development.

2.2 Entrepreneurial Orientation

Lumpkin & Dess (1996: 136) refer to Entrepreneurial Orientation (EO) as entrepreneurial activities; clarify how the entrepreneur undertakes the practices to act entrepreneurially. In regard to marketing approach, Covin and Miles (1999) define the term of Entrepreneurial Orientation as considering customers needs through innovation and creation of products, processes and strategies that satisfy customers. In another context, Ma'atoofi & Tajeddini (2010: 255) considered Entrepreneurship Orientation as an approach focusing on the innovation in market-service and risky taking.

Entrepreneurial Orientation involves a willingness to innovate, search for risks, take self-directed actions, and be more proactive and aggressive than other competitors towards new marketplace opportunities (Wiklund & Shepherd, 2005). Lumpkin & Dess (2001) pinpoint five dimensions of entrepreneurial orientation: innovation, risk-taking, creativity, competitive aggressiveness, and autonomy. Innovation refers to firm's tendency to create, support new ideas and processes that may result in new services, or new solutions to problems and needs (Certo, et..al, 2009). Risk taking refers to organization's interest to enter in high-risk business to achieve their objectives (Lumpkin and Dess 2001). Creativity is an initiative against competitors aiming to defend and seek new opportunities to achieve the organization's leading competitive position through the introduction of new services (Morris, et..al, 2008). Competitive aggressiveness has been defined as an organization's predisposition to challenge competitors directly and to achieve superiority over them in the marketplace (Certo, et..al, 2009). Autonomy is an entrepreneurial initiative action to an idea, seeing it through to completion (Lumpkin and Dess, 1996).

2.3 Innovation Performance

According to Hariandja (2011: 405) performance variables measured in the hotel industry consist of two, i.e. objective and perception, because this industry is to commercialize the intangible experience. Objective performance variables consist of the occupancy per room, gross operating profits and gross operating profit per available room per day. Haber & Reichel (2005) explained that the performance measurement must combine financial measures (revenue, cash flow, return on assets, return on equity) and non-financial measures (perceived market share, perceived sale growth, customer satisfaction, loyalty, and brand equity) to offer more comprehensive evaluation on firm's performance.

Innovative performance may vary along a newness continuum, ranging from radical to incremental (Laursen and Salter, 2006). Yet, Zhou, et..al (2011: 943), demonstrated that the measure of innovation performance required asking respondents to subdivide their present product range into three types of product. First, products that remained largely unchanged during the past 2 years. Second, products that were incrementally improved during the past 2 years. Third, products that were radically changed or introduced as entirely new products during the past 2 years. Others, such as Kirner, et.al (2009) for instance measured the innovation performance using three process innovation indicators: the production lead time, the employee productivity, and the rework or scrap rate. For another angle, Mankin (2007) also proposed that the innovation performance can be assessed using four measures: (1) Amount of ideas funded; (2) Return on investment or project net present value; (3) Innovators in higher positions/CEO devotion; and (4) Long-term customer adoption.

2.4 Environmental Turbulence and Innovation Performance

Many authors have found empirical support arguing that turbulent environments effected performance. Hashim, et..al. (2001) examined relationship between environmental complexity, strategy and performance through practice of 100 SMEs in manufacturing sector in Malaysia. The findings indicate that relationship between business strategy and performance of SME's moderated by environmental complexity. Mcnamara, et.al (2002) through using hierarchical regression to (76) top management teams from banks in three U.S found a significant relationship between the

TABLE 3 Treatment at baseline

Treatment	Patients
BF (640/9 μg)	44 (43.1)
FS (1000/100 μg)	21 (20.5)
FS (500/100 μg)	27 (26.4)
Tiotropium bromide	7 (6.8)
Montelukast	39 (38.2)
Theophyline	3 (2.9)

Data are presented as n (%). BF: budesonide/formoterol daily maintenance dose; FS: fluticasone/salmeterol daily maintenance dose.

DISCUSSION

Our results demonstrate, for the first time, that *F*eNO levels might be predictive of response to a stepwise approach in patients with difficult-to-treat asthma. This study adds to previous research showing a clinical utility of *F*eNO measurements in asthmatic patients [6–8]. It has been demonstrated that *F*eNO correlates with eosinophilic inflammation measured using bronchial biopsies and induced sputum [15, 16]. In addition, previous studies have shown that high numbers of sputum eosinophils were predictive of steroid response [17, 18]. This underlines that steroid response is related to particular characteristics of airway inflammation. Conversely, *F*eNO is reduced by treatment with inhaled corticosteroids [19], but elevated levels of this biomarker were previously observed in patients with severe asthma despite corticosteroid treatment [20]. This might imply either steroid resistant inflammatory processes in the airway, or insufficient doses of anti-inflammatory medication. Theoretically, *F*eNO measurements might help us to identify individuals with persistent eosinophilic inflammation in which a steroid response is more likely. This hypothesis is supported by our results in a difficult asthma population, indirectly by those of SMITH *et al.* [8], who found that *F*eNO measurements provided a means of predicting steroid response in patients with undiagnosed respiratory symptoms, and also by the findings of LITTLE *et al.* [21], who have shown that response to oral steroids in asthma patients can be predicted in most cases by analysing this biomarker. Even with various expert-derived guidelines that provide asthma treatment strategies, many patients remain suboptimally controlled. In our series, 48% of the patients did not achieve control, as assessed by the ACT questionnaire, despite receiving the best available treatment and optimal management efforts. This figure is in accordance with the Gaining Optimal Asthma Control (GOAL) study, which showed that symptoms were uncontrolled in as many as 38% of patients with moderate-to-severe asthma, despite high doses of salmeterol/fluticasone, good adherence (virtually 100%) and tightly monitored inhalation techniques [22]. The addition of oral prednisolone ($0.5\ mg \cdot kg^{-1}$) led to a modest 7% increase in the percentage of well-controlled patients [22]. The most widely accepted explanation for these unsatisfactory findings is the view that the term ''difficult-to-treat asthma'' might include a broad spectrum of inflammatory patterns, not always as responsive to steroids as an eosinophil-associated process could be. In fact, several phenotypes of refractory asthma have been proposed, including

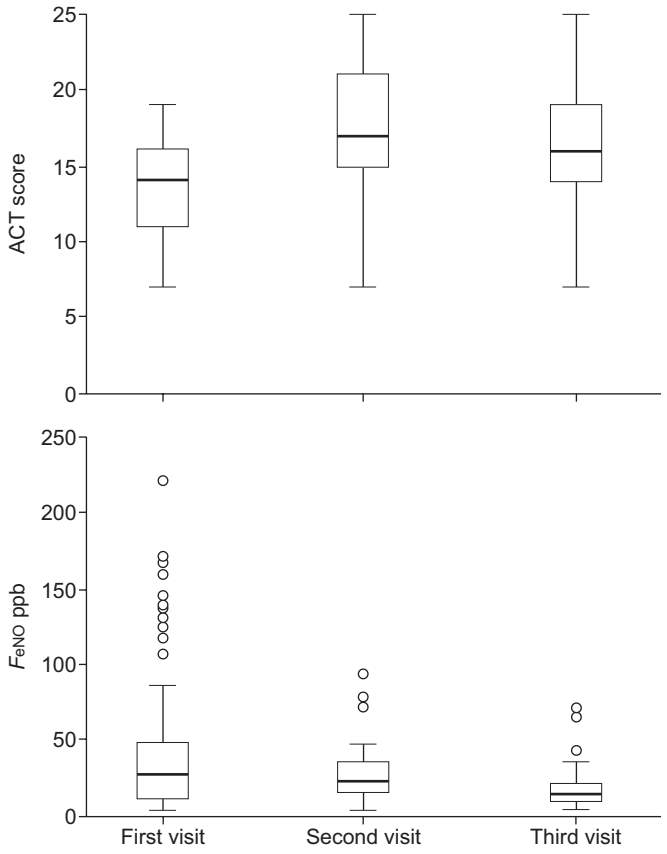

FIGURE 2. Box plots of Asthma Control Test (ACT) score and exhaled nitric oxide fraction (*F*eNO) values in successive visits. Boxes represent median and interquartile range values; whiskers extend to fifth and 95th percentiles; outliers are shown individually. ACT score increased significantly from visit one to visit two. *F*eNO values decreased significantly from visit one to visit three. It must be noted that median ACT score was higher at visit two than at visit three. This apparent contradiction is explained by the fact that many patients achieved control (ACT score >20) at visit two. However, at visit three, the majority of subjects remained uncontrolled (ACT score <20). Conversely, median *F*eNO decreased at every visit, reflecting the fact that patients who did not achieve control showed low values of the biomarker.

those subjects who have persistent eosinophilic inflammation despite steroid treatment, but also those with predominant neutrophilic airway inflammation and those in whom virtually no inflammation is present on bronchial biopsy [23].

We have found a higher proportion of positive skin test results in those patients who achieved control than in those who remained uncontrolled. Although the classification between atopic and nonatopic disease has recently come under scrutiny, the ENFUMOSA (European Network for Understanding Mechanisms of Severe Asthma) study found fewer positive skin-prick tests in severe asthmatics compared with controlled patients, suggesting an association between atopy and the potential for poor/good asthma control with steroid/β-agonist therapy [24]. Positive bronchodilator test and PEF variability >20% were also significantly more common in asthmatics who gained control, possibly reflecting a more reversible clinical situation. Conversely, depression was more frequent in patients who did not achieve control.

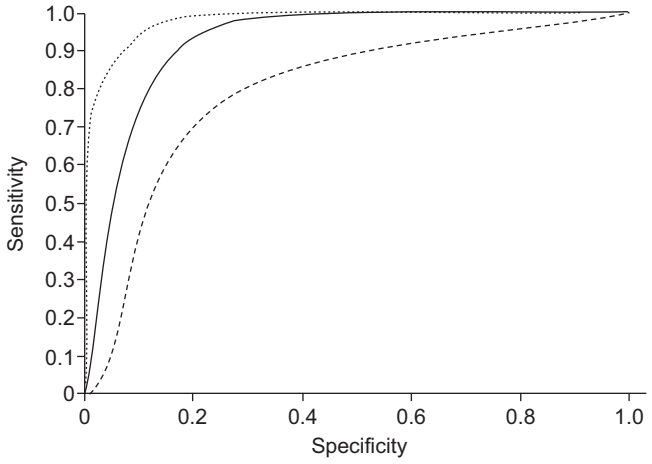

FIGURE 3. Receiver operating characteristic (ROC) curve for the prediction of therapeutic response from exhaled nitric oxide fraction (F_{ENO}) measurements. ROC curve identified the optimal cut-off value of 30 ppb with 87.5% sensitivity (95% CI 73.9–94.5%) and 90.6% specificity (95% CI 79.7–95.9%). Area under the ROC curve is 0.925. Broken lines illustrate the 95% confidence limits.

It must be noted that we assessed asthma control by administering the ACT. The recently published ATS/ERS consensus about standardisation of outcomes relating to asthma control recommend this kind of composite measure designed to provide numerical comparisons of treatment effect [25]. This brief five-item questionnaire measures several different areas of asthma control, including symptoms, rescue inhaler usage and the impact of asthma in everyday functioning, but, even using this tool, accurate assessment can be difficult and comorbidities might alter the scoring [26]. In two case series, coexisting disorders with asthma-like symptoms were found in 19% and 34% of patients with difficult asthma [27, 28]. In such individuals, a variety of comorbid diseases, such as gastro-oesophageal reflux disease, obesity, vocal cord dysfunction and upper airway disease (*e.g.* seasonal allergies), may overlap with symptoms of asthma, making it difficult to assess control. Particularly, it has been reported that depressive and anxiety disorders were associated with a decreased level of asthma control, including more visits to the doctor or emergency room, inability to do usual activities, and more days of symptoms compared to those without depression or anxiety [29]. We have not found differences in the rate of other comorbid conditions between patients who reached control and those who remained uncontrolled.

Some limitations of this study must be addressed. 1) The sample size was small. 2) It is possible that the treatment periods (1 month) were too short to reach the maximum effect. In fact, one study demonstrated that asthmatic patients with stable dosing tend to improve further, confirming the benefit of sustained treatment in subjects who have difficulty in achieving control [22]. 3) Airway hyperresponsiveness, a factor that could potentially predict therapeutic response, was not assessed in all of the patients. 4) A selection bias is possible because the study design excluded patients who were taking oral steroids. Thus, the sample might not accurately represent the whole population of difficult-to-treat asthmatics. Conversely, it must be taken into account that the diagnosis of severe asthma still represents a challenge for physicians, and many patients with other entities like COPD could be categorised as ''difficult-to-treat asthma''. However, in our sample there were 71% females, more than 90% were never smokers, hyperresponsiveness was present in almost all of them and mean F_{ENO} value was 43 ppb. All of these facts, taken together, make us feel confident that our patients were truly asthmatics. 5) The investigators were not blinded to the F_{ENO} results. This fact could be a possible source of bias, although we believe that the influence in our results is not relevant because therapeutic decisions were not based on F_{ENO} values, but rather were derived from the ACT score, which is self completed by the patients. 6) Although all of the patients had been regularly followed at an outpatient asthma clinic, they had previously been educated on the correct use of inhalers, they were advised to bring their maintenance mediation to the hospital and all of them denied nonadherence at the time of the first clinical assessment we did not measure adherence objectively. GAMBLE *et al.* [30] have recently demonstrated that a significant proportion of patients with difficult-to-control asthma remained nonadherent to inhaled or oral corticosteroids. However, patients were unaware that they were being observed and it is well known that patients who agree to participate in research are more likely than non-participants to be adherent with their regimen. Anyway, although noncompliance could underestimate the population response to the stepwise approach, it is unlikely to affect the predictive accuracy of F_{ENO}.

TABLE 4 Sensitivity, specificity, likelihood ratios (LRs), positive predictive values (PPVs) and negative predictive values (NPVs) at different cut-off points of exhaled nitric oxide fraction (F_{ENO}) values

F_{ENO} ppb	Sensitivity %	Specificity %	Positive LR	Negative LR	PPV	NPV
20	90 (76.9–96.0)	81.1 (68.6–89.4)	4.77 (2.70–8.42)	0.12 (0.05–0,32)	78.3 (64.4–87.7)	91.5 (80.1–96.6)
25	90 (76.9–96.0)	84.9 (72.9–92.1)	5.96 (3.12–11.39)	0.12 (0.05–0.30)	81.8 (68.0–90.5)	91.8 (80.8–96.8)
30	87.5 (73.9–94.5)	90.6 (79.7–95.9)	9.28 (3.99–21.53)	0.14 (0.06–0.32)	87.5 (73.9–94.5)	90.6 (79.7–95.9)
35	77.5 (62.5–87.7)	90.6 (79.7–95.9)	8.22 (3.51–19.23)	0.25 (0.14–0.45)	86.1 (71.3–93.9)	84.2 (72.6–91.5)
40	70.0 (54.6–81.9)	94.3 (84.6–98.1)	12.37 (4.04–37.81)	0.32 (0.20–0.51	90.3 (75.1–96.7)	80.6 (69.1–88.6)
45	67.5 (52.0–79.9)	94.3 (84.6–98.1)	11.93 (3.89–36.55)	0.34 (0.22–0.54)	90.0 (74.4–96.5)	79.4 (67.8–87.5)
50	42.5 (28.5–57.8)	94.3 (84.6–98.1)	7.51 (2.36–23.87)	0.61 (0.46–0.81)	85.0 (64.0–94.8)	68.5 (57.1–78.0)

Data are presented with 95% confidence intervals.

Finally, it must be highlighted that no single outcome measure can adequately assess asthma control. The clinical value of composite scores like ACT is limited by the lack of validation in a wider range of settings, particularly in patients with different asthma phenotypes.

The present study may have implications for clinical practice and future research. Such information could be beneficial when advising patients what to expect when deciding to escalate their medication and to employ potentially harmful drugs. Conversely, it is of critical importance to identify patients who are less responsive to steroid treatment and are at risk of developing persistent airway obstruction. These patients should be closely monitored and considered for novel anti-asthma drugs in order to prevent progression of the disease. In addition, attempts at treating by phenotype will aid in the development of a more rational approach to the evaluation of interventions like therapy with omalizumab, mepolizumab, imatimib or anti-tumor necrosis factor-α agents.

In conclusion, the current results suggest that $F_{E}NO$ can identify patients with difficult-to-treat asthma and the potential to respond to high doses of inhaled corticosteroids or systemic steroids.

STATEMENT OF INTEREST

Statements of interest for L.A. Pérez-de-Llano and for the study itself can be found at www.erj.ersjournals.com/misc/statements.dtl

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