



Perceived 10-year change in respiratory health: Reliability and predictive ability

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KEYWORDS

Asthma;
Longitudinal;
Perceived health;

Summary

Objective: To investigate the usefulness of a self-reported respiratory health transition question over 10 years through reliability, ability to capture long-term asthma trajectory and predictive ability.

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Respiratory health;
Variability

Settings: In two 20-year cohorts (Asthma-E3N, $n = 16,371$, 61–88 years; EGEA, $n = 1254$, 27–82 years), perceived 10-year change in respiratory health (“Overall, in the last 10 years, do you think that your bronchial or respiratory health has changed?” if yes: “Has it improved/deteriorated?”) was studied in relation with change in respiratory medication dispensation and lung function, with change in asthma status measured over the same period of time, and with subsequent asthma-related outcomes.

Results: Perceived deterioration (14% in Asthma-E3N) was associated with increased dispensations of respiratory medications over time (from 17% with >2 dispensations in 2004 to 26% in 2010). Report of perceived deterioration (13% in EGEA) was related to a lung function decline steeper by 9.3 mL/year as compared to perceived improvement. In both cohorts, change (improvement or deterioration) was more often perceived by participants with than without asthma (>45% vs <20%) and was dominant among participants with persistent current asthma (77%). Perceived deterioration was related to poorer asthma control 7 years later and to higher use of oral corticosteroids in the following 18 months.

Conclusion: The proposed simple self-reported respiratory health transition question over 10 years allows predicting part of the long-term trajectory of asthma.

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Introduction

A key aspect of asthma heterogeneity comes from the variability of the disease expression over time [1]. As opposed to most chronic diseases that progressively worsen, asthma may progress, persist, remit or relapse over different time scales (days, weeks, months, years, decades) [2]. The short-term variability in the expression of asthma is well documented through environmental triggers of exacerbations or daily monitoring in clinical trials [3,4]. Tools developed to characterize the course of asthma, through activity, control or quality of life, have considered period of time from 2 weeks to 1 year [5–8]. The long-term progression of asthma is more difficult to characterize though identifying patients with change in disease

trajectory has important clinical implication [9]. Birth cohorts provided insights into the long-term course of asthma from childhood to adulthood through multiple follow-ups [10], but such information remains scanty within adulthood. Epidemiological cohorts in adults usually compared asthma phenotypes assessed at two separated time points, years or decades apart, thus may not reflect the global changes in asthma expression during the entire period of time [11].

One approach developed to assess change in health status consists in self-reported health transition question, which rely on subject’s retrospective assessment of the direction of change over a given period – typically, deterioration, no change and improvement. Such patient-reported outcomes which are able to simultaneously account for multiple dimensions of health have gained importance by adding value to clinical data [12,13]. Self-reported health transition questions have been widely used to calculate the minimal clinically important difference on health-related quality of life or other outcomes [14,15]. In this context, the referred period of time was limited to a couple of months. However, in chronic conditions which wax and wane over time, like asthma, longer period of time (years) may allow to retrospectively address the overall change in disease trajectory. Despite the clinical and epidemiological relevance of such long-term self-reported transition question in asthma, a single previous work showed concurrent and predictive ability of a perceived 10-year change in respiratory health [16]. But results were limited to a specific male working population with little proportion of subjects with asthma.

The present study investigated the usefulness of a retrospective assessment of change in respiratory health over 10 years, through a simple self-reported transition question, from clinical and epidemiological perspectives. Taking advantage of complementary populations from two French cohorts, our specific aims were: 1) to assess the reliability of such a long-term retrospective assessment of change, 2) to investigate its ability to capture long-term

Abbreviations

ACT	Asthma Control Test
AQLQ	asthma quality of life questionnaire
BHR	bronchial hyper responsiveness
CI	confidence interval
COPD	chronic obstructive pulmonary disease
E3N	<i>Etude Epidémiologique auprès des femmes de la mutuelle générale de l’Education Nationale</i>
EGEA	epidemiological study on the genetics and environment of asthma
FEV ₁	forced expiratory volume in 1 s
HRQoL	health-related quality of life
ICS	inhaled corticosteroids
LABA	long-acting β 2-agonists
MGEN	<i>Mutuelle Générale de l’Education Nationale</i>
OCS	oral corticosteroids
OR	odds ratio
SABA	short-acting β 2-agonists
SD	standard deviation

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