

Resilience is low in adolescents with asthma and independent of asthma control

*Gian Luigi Marseglia¹, Amelia Licari¹, Riccardo Castagnoli¹, Riccardo Ciprandi²,
Giorgio Ciprandi³*

¹Department of Paediatrics, Fondazione IRCCS Policlinico San Matteo, University of Pavia, Pavia, Italy; ²Cystic Fibrosis Unit, Istituto G. Gaslini, Genoa, Italy; ³Allergy Clinic, Casa di Cura Villa Montallegro, Genoa, Italy

To the Editor,

Resilience includes the personal qualities that permit one to thrive on adversities (1). Resilience relies on multidimensional characteristics depending on the context, time, age, gender, socio-economic aspects, and specific stressors. Resilience, thus, expresses the successful stress-coping ability.

Children may develop resilience when experiencing chronic diseases and/or living in challenging situations (2). In this regard, asthma could be a relevant factor that may promote or lessen individual resilience (3). The low socio-economic status could increase resilience in children with asthma (4). In particular, the promotion and implementation of programming focused on adaptive self-management behaviors may develop and maintain resiliency behaviors in at-risk youth with asthma (3).

Adolescence is a transition period of life characterized by emotional distress. Adolescents with asthma tend to refuse the illness condition and display poor adherence to prescribed treatments. Consequently, optimal asthma control is unlikely achieved. Resilience could be a factor involved in adolescents with asthma, but this topic is still neglected, mainly considering the asthma control grading. Therefore, the aim of the current study was assessed the resilience in asthmatic adolescents, considering the asthma control grade.

This cross-sectional study consecutively enrolled 87 adolescents (60 males, 27 females, median age 14.2 years) with asthma visited at a third-level pediatric clinic.

The internal ethics review Committee obtained approval for the study (code number: 22253/2017); the parents signed informed consent.

Inclusion criteria were: age between 12 and 18 years, both genders, and asthma diagnosis. Exclusion criteria were: current respiratory infections, severe chronic disorders (e.g., metabolic disorders, autoimmunity, neuropsychiatric diseases, cancer), and medications, including immune-suppressants, psychiatric drugs, chemotherapy, able to interfere with the interpretation of the results.

Asthma diagnosis and asthma control grade were documented according to the global initiative for asthma GINA guidelines (www.ginasthma.com). Asthma symptom perception was assessed by visual analog scale (VAS), lung function was measured by spirometry, and the asthma control test (ACT) was administered. Resilience was evaluated by the Connor-Davidson resilience scale (CD-RISC), comprising of 25 items, each rated on a 5-point scale (0–4), with higher scores reflecting greater resilience (1). A median score of 82 in the general population was reported, 64.5 in patients with generalized anxiety disorders, and 47 in post-traumatic stress disorders (1).

In the current study, the median CD-RISC score was 61 (interquartile ranges 53–72). Table 1 reported the clinical outcomes stratifying per asthma control grade. As expected, adolescents with uncontrolled asthma had more severe symptoms and lower ACT scores. Surprisingly, resilience scores were not affected by the asthma control grade.

Table 1. Comparison among the 3 groups of patients: well controlled, partially controlled and uncontrolled according to GINA guidelines.

	Asthma control (GINA)			##P
	Well controlled [N = 48]	Partly controlled [N = 30]	Uncontrolled [N = 9]	
Gender: Male, n/N (%)	33/48 (68.7 %)	22/30 (73.3 %)	5/9 (55.5 %)	0.59
Age (years)	14.8 [13 - 17]	14.5 [13.5 - 17.3]	14 [12.7 - 17.1]	0.85
VAS for asthma symptoms (patient)	9 [8 - 10]	8 [8 - 8]	7 [7 - 8]	0.002
FVC - at baseline (% pred.)	101.5 [93.7 - 109.5]	101.5 [91.2 - 108.7]	95 [82 - 96]	0.13
FEV ₁ - at baseline (% pred.)	97.5 [91.7 - 107.2]	101.5 [93.5 - 111.7]	90 [72 - 100]	0.05
FEV ₁ /FVC - at baseline	83.4 [79.9 - 87.8]	87.6 [84.1 - 90.9]	83.7 [70 - 90.8]	0.10
Asthma Control Test (ACT) score	24 [23 - 25]	22 [21 - 22]	16 [15 - 17]	< 0.0001
CD-RISC	61 [52 - 72]	62 [53 - 71]	60 [55 - 74]	0.9763

Figures represent median values (unless otherwise specified) and figures in squared parentheses represent 1st and 3rd quartiles; figures in round parentheses represent column percentages; significant p values in bold.

At our best knowledge, the present study is the first investigation of resilience in asthmatic adolescents, considering the asthma control level.

The study had some limitations, including the cross-sectional design, the lack of biomarker assessment, and the limited number of subjects. However, the data were collected in a real-life setting, so the findings can mirror what happens in clinical practice.

In conclusion, this study demonstrated that adolescents with asthma had a low resilience level, probably consequent to the chronic condition's stress. This low resilience was independent of the asthma control grade. This outcome could account for the *per se* stressing condition of asthma. Consequently, this issue deserves adequate attention in managing asthmatic adolescents.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

References

1. Connor KM, Davidson JRT. Development of a new resilience scale: the Connor-Davidson resilience scale (CD-RISC). *Depr Anx* 2003;18:76-82
2. Masten AS, Barnes AJ. Resilience in children: developmental perspectives. *Children* 2018;5:98
3. Pappalardo AA, Weinstein S. The anxiety-asthma relationship: risk of resilience. *J Pediatr* 2019;214:8-10
4. Chen E, Strunk RC, Trethewey A, Schreier HM, Maharaj N, Miller GE. Resilience in low-socioeconomic-status children with asthma: adaptation to stress. *J Allergy Clin Immunol* 2011;128:970-976

Correspondence

Received: 6 May 2021

Accepted: 7 June 2021

Giorgio Ciprandi

Allergy Clinic, Casa di Cura Villa Montallegro, Genoa, Italy

E-mail: gio.cip@libero.it