Review Article

Review of Psychosocial Aspects in Adolescent Patients with Bronchial Asthma

Selene Valero-Moreno, Encarna Espejo, Inmaculada Montoya-Castilla and Marián Pérez-Marín*

Department of Personality, University of Valencia, Evaluation and Psychological Treatments, Spain

ARTICLE INFO

Received Date: November 08, 2019
Accepted Date: December 02, 2019
Published Date: December 06, 2019

KEYWORDS

Bronchial asthma
Psychosocial
Proquest databases

Citation for this article: Selene Valero-Moreno, Encarna Espejo, Inmaculada Montoya-Castilla and Marián Pérez-Marín. Review of Psychosocial Aspects in Adolescent Patients with Bronchial Asthma. SL Pediatrics & Therapeutics. 2019; 2(1):114

Corresponding author:
Marián Pérez-Marín,
Faculty of Psychology, University of Valencia, Avenida Blasco Ibáñez 21, 46010, Valencia , Spain,
Email: marian.perez@uv.es

ABSTRACT

Bronchial asthma is the most common chronic disease among the child and adolescent population, involving an overburden on the children and their families, because they have to change their lifestyles to comply with the requirements of treatment.

Method: We used the WOS and Proquest databases, and selected scientific articles in English, using adolescent participants. The objective was to analyze articles from 2015 to 2019 which analyzed in depth the results on psychosocial and adaptation factors in adolescents with asthma that have appeared in recent years in the scientific literature.

Results: From the 41 articles analyzed, the results extracted from the review are grouped into five categories for analysis of psychosocial adaptations: social environment, disease characteristics, caregiver support, patient characteristics and health professionals. The conclusions are that the best measures to achieve greater adherence to treatment and better control of asthma is to make the adolescent aware of asthma symptoms, provide tools to maintain patient well-being and good disease management, and improve communication with health professionals and education of families.

INTRODUCTION

Early childhood and adolescent respiratory diseases are one of the main health problems in the pediatric population worldwide [1], encompassing a wide variety of respiratory processes. Bronchial Asthma is therefore the most common chronic disease in childhood. Data on pediatric prevalence indicates that between 11-15% of the infant population in Spain has asthma [2,3], with boys twice as likely to suffer from asthma at these ages than girls, although there is a tendency for the risk to even out and even increase among girls in adolescence [2]. These figures have increased considerably over the past 30 years in all age groups [2]. Bronchial asthma is defined as a chronic inflammatory disease of the respiratory tract, with a pathogenesis involving various cells and mediators of inflammation, partially determined by genetic factors and leading to bronchial Hyperresponsiveness (HRB) and a variable obstruction of the airflow, which is totally or partially reversible by either drug action or spontaneously[2]. Asthma is the result of an interaction between various environmental and genetic factors.

Asthma is often not properly diagnosed and treated, creating a significant burden on patients and their families, and may limit the patient's activities throughout his or her life [1]. Asthmatic crises can be frightening for children due to the consequent disorganization of their lives, and have consequences on their physical, emotional or

social capacity, caused by the impact of the disease[3]. In addition, the direct health costs of bronchial asthma in paediatrics arise from visits to both primary care and specialist pneumology services, as well as hospital admissions and treatment costs [3]. As for indirect costs (non-medical costs resulting from the sick person's loss of productivity), it is estimated that 38% of children in Europe have been absent from school as a result of bronchial asthma [3].

Finally, among the adolescent population, the data are more alarming. Although the course of asthma usually decreases with age, it is at this stage that the disease has the highest incidences of morbidity and mortality due to noncompliance with treatment[4]. According to studies, the death rate is higher in adolescents, and approximately twice as high as in younger children[5].The general objective of this study is to analyse in depth the results on psychosocial and adaptation factors in adolescents with asthma that have appeared in the scientific literature in recent years.

METHODS

The methodology used to achieve this objective consisted of a systematic review of the scientific literature, following the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) declaration.

The inclusion criteria used contained the time period: the search was initially limited to primary sources published in the previous 4 years, and the primary sources were also later extended to fundamental references in the field of study. Likewise, attempts were made to select articles directly related to the object of study, excluding those that were not entirely well profiled. The latter search was conducted on 8 February 2019.

The process is summarized as follows: an initial search was conducted in two databases. In both the WOS database and Proquest Central, the following search path was used: (asthma) AND (psych*) AND (adol*) AND (family) NOT (infan) NOT (chil*). A total of 14 articles in the WOS were obtained for the first route and a total of 111 articles were obtained in the central Proquest database for this search route, amounting to a total of 125 articles.

In these 125 references, only the following inclusion criteria were met: Year 2016-2019; language: English; type of document: article; and review/revision and access to the full text. After eliminating duplicates and in-depth reading of the abstracts, references were excluded due to focusing on asthma problems in adults and care of health professionals rather than children or families/caregivers, exclusively addressing pharmacological treatment or causes of the disease, being instrument validation studies, and dealing with subjects other than asthma.

Once the bibliographic search had been completed and the relevant primary sources identified for review, the contents of the 41 selected documentary sources were analysed. 30 of them were from primary sources from the last 4 years, and 11 articles were considered part of a secondary search, and they are older than the search timeframe, but considered relevant to the subject studied.

RESULTS

The results of the review show that asthma is an acute and chronic disease which can be controlled by appropriate management [6], based on the adolescent's awareness of the symptoms and their management, and communication with related professionals. To achieve good asthma management, they must adapt their daily lifestyles to the characteristics of the disease [7].

Social environment

Low family income levels are an environmental barrier that prevents the necessary foundations for maintaining a certain level of welfare, making it difficult to acquire adequate treatment, as well as causing major levels of stress in families [8-10]. Furthermore, children spend many hours of their daily lives at school, and as such school policies or a lack of coordination of care can result in children having limited access to medication during school hours [11], which, together with the social stigma surrounding this disease [12], leads to increased school absenteeism and therefore poorer school performance[13].

Adequate training of staff in symptom management and easy access to medications can prevent the worsening of asthma and poor outcomes [12,14]. School programmes on asthma training and management are one way to help families and patients with asthma. These programmes favour a reduction in exacerbations and the incidence of stress [15-17].

Patient characteristics

Patients with asthma have higher rates of stress, depression, and behavioral problems associated with greater severity of asthma [18-20]. Psychosocial factors such as conflict with parents, selective rejection and physical and sexual violence and abuse are associated with an increase in symptoms and their severity [21-24]. In addition, these symptoms can affect sleep, leading to interference and nocturnal awakenings [25]. The development of adequate and effective sleep hygiene practices can help maintain better asthma control [26]. One fact to keep in mind is that most asthma-related deaths occur during the night [27].

Disease characteristics

A good knowledge of asthma triggers and symptoms is important in order to create conditions conducive to adequate treatment and reduced complications [7]. This involves education in self-management [28,29] and the preparation of an personalized action plan to achieve good asthma control [8]. One of the most common causes of poor asthma control is a lack of adherence to daily treatment[7]. Non-adherence factors can be grouped into intentional factors and unintentional factors [19,30,31].

Adherence to treatment is determined by cultural and religious beliefs about asthma [32,33], e.g. having a negative perception of asthma by questioning the need for steroids and worrying excessively about their side effects [7].

In addition, a large proportion of asthma users and their caregivers have poor technique in the application of inhalers [12]. An important component in the treatment of asthma is the precise perception of symptoms, since it enables rescue medicine to be used or medical help to be sought in a timely manner [34].

The association of obesity with asthma is bidirectional and positive, affects all demographic groups and is in the form of a "U". Malnutrition is therefore also related to asthma [19,35-38]. Physical activity can help manage asthma and even prevent its development [39]. However, exercise- induced bronchoconstriction may be the reason for the sensation that exercise is unpleasant, and may produce anxiety about the risk of an exacerbation [40]. This leads to low levels of physical activity, which contributes to increased obesity and psychological health problems [19].

Health professionals

Health professionals consider the initial approach to and psychoeducation about the disease to be appropriate for parents, since parents often do not have a clear understanding of the purpose and administration of medication [7]. Health professionals influence the asthma management process through medical care and through the patient's and family's psychoeducation [41]. Comprehensive asthma care, including traditional medical care, mental health, education and general family functioning [18,19], is therefore very important.

Caregiver suport

Asthmatic adolescents are in a stage involving great biopsychosocial changes, in addition to dealing with treatment and the effects of their disease [31]. Adolescents take greater responsibility for managing their treatment, and establish greater autonomy and independence from their parents.

This change in responsibility can lead to conflicts between parents and children, resulting in less adherence to medication [12]. There are also changes in personality and attitudes toward asthma, which may be mediated by different coping strategies [42,43]. This maturation process is a critical period for the development of psychological problems, such as psychological distress, depression, family conflict and substance abuse [12,16]. Training in coping strategies promotes active participation in self-care based on individual capacities and needs, and in decision-making [16]. Special attention should be paid to active smoking in adolescents, since this is associated with increased probabilities of asthma exacerbations [44].

Several studies are analyzing the effect of the use of new technologies on asthma management [17,45,46]. This technology provides information about asthma, support for decisions, telemedicine, personalized education and motivational messages.

DISCUSSION

The aim of this work has been to review the scientific literature on psychosocial adaptations in adolescences with asthma published in the last four years. The diagnosis of bronchial asthma in adolescence can have negative repercussions on the emotional well-being of patients (emotional disorders), and also pose a risk to the proper evolution of the disease and adherence to its treatment. Although bronchial asthma is a risk factor in adolescence, there are different variables such as the social environment, parental support, prevention and assistance

in the contexts closest to the adolescent (school context and health). It therefore seems necessary to design effective psychosocial interventions based on promoting the protective psychological factors and preventing the risk factors associated with bronchial asthma in order to improve the quality of life of these patients, using a multisystemic approach.This systematic review of the literature has some limitations: the search was conducted from 2015 to the present (July of 2019) therefore covering only the last four years of research.

Possible future lines of research would include: longitudinal studies analysing the effects of evolutionary changes in the development and management of asthma from early childhood to adulthood, as well as the detection of protective factors, as well as further studies on the inclusion of new technologies in asthma management. It also seems necessary to develop effective interventions in the family, and school interventions that include non-asthmatic peers to work on peer support and stigmatization of the disease.

It is relevant to know in a general way the psychosocial aspects that affect the adolescent with asthma. This is a stage in which there is a loss of adherence and the first psychological problems or disorders may arise. Thus, with this type of revisions, it is possible to detect which are the risk and protection factors in the adolescent population with asthma. Once detected, we can develop intervention programs based on improving adaptation to the disease, in order to improve quality of life and reduce the negative impact that may have asthma.

CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

REFERENCES

1. (2017). 10 Facts on asthma.
2. (2018). GEMA. Spanish Asthma Management Guide (GEMA 4.3). Madrid: Luzan5.
3. Gibson GJ, Loddenkemper R, Lundbäck B, Sibille Y. (2013). Respiratory health and disease in Europe: the new European Lung White Book.42: 559-563.
4. deBenedictis D, Bush A. (2017). Asthma in adolescence: Is there any news? Pediatr Pulmonol. 52: 129-138.
5. Ahmed H, Turner S. (2019). Severe asthma in children-a review of definitions, epidemiology, and treatment options in. Pediatr Pulmonol. 54: 778-787.
6. Yoos HL, Kitzman H, Henderson C, McMullen A, Sidora-Arcoleo K, et al. (2007). The impact of the parental illness representation on disease management in childhood asthma. Nurs Res. 56: 167-174.
7. Searle A, Jago R, Henderson J, Turner KM. (2017). Children's, parents' and health professionals' views on the management of childhood asthma: a qualitative study. NPJ Prim care Respir Med. 27:53.
8. Asher I, McNamara D, Davies C, Demetriou T, Fleming T, et al. (2017). Asthma and respiratory foundation NZ child and adolescent asthma guidelines: A quick reference guide. N Z Med J. 130: 10-33.
9. Ministry of Health. Un-flued gas heaters.
10. Howden-Chapman P, Baker MG, Bierre S. (2013). The houses children live in: policies to improve housing quality. Policy Quarterly.
11. Keeton V, Soleimanpour S, Brindis CD. (2012). School-based health centers in an era of health care reform: Building on history. CurrProblPediatrAdolesc Health Care. 42: 132-156.
12. Costello RW, Foster JM, Grigg J, Eakin MN, Canonica W, et al. (2016). The Seven Stages of Man: The Role of Developmental Stage on Medication Adherence in Respiratory Diseases. J allergy Clin Immunol Pract. 4: 813-820.
13. Kim J, Thompson EA, Walsh EM, Schepp KG. (2015). Trajectories of Parent- Adolescent Relationship Quality Among At-Risk Youth: Parental Depression and Adolescent Developmental Outcomes. Arch Psychiatr Nurs. 29: 434-440.
14. Geryk LL, Roberts CA, Carpenter DM. (2017). A systematic review of school- based interventions that include inhaler technique education. Respir Med. 132: 21-30.
15. Gargano LM, Thomas PA, Stellman SD. (2017). Asthma control in adolescents 10 to 11 y after exposure to the World Trade Center disaster. Pediatr Res. 81: 43-50.
16. Hemati Z, Abasi S, Mosaviasl F, Shakerian B, Kiani D. (2016). Effect of Orem's Self-Care Model on Perceived Stress in Adolescents with Asthma Referring the Asthma and Allergy Clinic, Isfahan, 2014. Int J community based Nurs midwifery. 4: 247-255.

17. Mosnaim GS, Pappalardo AA, Resnick SE, Codispoti CD, Bandi S, et al. (2016). Behavioral Interventions to Improve Asthma Outcomes for Adolescents: A Systematic Review. J allergy Clin Immunol Pract. 4: 130-141.
18. McQuaid E, Fedele D. (2017). Pediatric asthma. In: Roberts M, Steele R, editors. Handbook of pediatric psychology. New York: The Guilford Press.
19. Oland AA, Booster GD, Bender BG. (2017). Psychological and lifestyle risk factors for asthma exacerbations and morbidity in children. World Allergy Organ J. 10:35.
20. Katon W, Lozano P, Russo J, McCauley E, Richardson L, et al. (2007). The prevalence of DSM-IV anxiety and depressive disorders in youth with asthma compared with controls. J Adolesc Health. 41: 455-463.
21. Cohen RT, Canino GJ, Bird HR, Celedón JC. (2008). Violence, abuse, and asthma in Puerto Rican children. Am J Respir Crit Care Med. 178: 453-459.
22. Alves G da C, Santos DN, Feitosa CA, Barreto ML. (2012). Community violence and childhood asthma prevalence in peripheral neighborhoods in Salvador, Bahia State, Brazil. Cad Saude Publica. 28: 86-94.
23. Chen Z, Salam MT, Alderete TL, Habre R, Bastain TM, et al. (2017). Effects of Childhood Asthma on the Development of Obesity among School-aged Children. Am J RespirCrit Care Med. 195: 1181-1188.
24. Murphy TM, Wong CCY, Arseneault L, Burrage J, Macdonald R, et al. (2015). Methylomic markers of persistent childhood asthma: a longitudinal study of asthma-discordant monozygotic twins. Clin Epigenetics. 7: 130.
25. Szefler SJ, Murphy K, Harper T 3rd, Boner A, Laki I, et al. (2017). A phase III randomized controlled trial of tiotropium add-on therapy in children with severe symptomatic asthma. J Allergy Clin Immunol. 140: 1277-1287.
26. Koinis-Mitchell D, Kopel SJ, Boergers J, McQuaid EL, Esteban CA, et al. (2015). Good Sleep Health in Urban Children With Asthma: A Risk and Resilience Approach. J Pediatr Psychol. 40: 888-903.
27. Ghio AJ. (2016). Asthma as a disruption in iron homeostasis. Biometals. 29: 751-779.
28. Dalcin P de TR, Grutcki DM, Laporte PP, Lima PB de, Viana VP, et al. (2011). Impact of a short-term educational intervention on adherence to asthma treatment and on asthma control. J Bras Pneumolpublicacao Of da Soc BrasPneumol e Tisilogia. 37: 19-27.
29. Henríquez Young MT, Ceruti DE. (2013). Education in asthmatic controlled children in Roberto del Río Hospital. Impact on knowledge, adherence and disease control. Rev Chil Respir. 29: 70-74.
30. Klok T, Kaptein AA, Brand PLP. (2015). Non-adherence in children with asthma reviewed: The need for improvement of asthma care and medical education. Pediatr Allergy Immunol. 26: 197-205.
31. Burg GT, Covar R, Oland AA, Guilbert TW. (2018). The Tempest: Difficult to Control Asthma in Adolescence. J Allergy Clin Immunol Pract. 6: 738-748.
32. Ardura-Garcia C, Stolbrink M, Zaidi S, Cooper PJ, Blakey JD. (2018). Predictors of repeated acute hospital attendance for asthma in children: A systematic review and meta-analysis. Pediatr Pulmonol. 53: 1179-1192.
33. Grossoehme DH, Szczesniak RD, Britton LL, Siracusa CM, Quittner AL, et al. (2015). Adherence Determinants in Cystic Fibrosis: Cluster Analysis of Parental Psychosocial, Religious, and/or Spiritual Factors. Ann Am Thorac Soc. 12: 838-846.
34. Park H-W, Song W-J, Cho S-H, McGeachie MJ, Martinez F, et al. (2018). Assessment of genetic factor and depression interactions for asthma symptom severity in cohorts of childhood and elderly asthmatics. Exp Mol Med. 50:77.
35. Mangini LD, Hayward MD, Dong YQ, Forman MR. (2015). Household Food Insecurity is Associated with Childhood Asthma. J Nutr. 145: 2756-2764.
36. Muc M, Mota-Pinto A, Padez C. (2016). Association between obesity and asthmaepidemiology, pathophysiology and clinical profile. Nutr Res Rev. 29: 194-201.
37. Raj D, Kabra SK, Lodha R. (2014). Childhood obesity and risk of allergy or asthma. Immunol Allergy Clin North Am. 34: 753-765.

38. Szentpetery SS, Gruzieva O, Forno E, Han Y-Y, Bergstrom A, Kull I, et al. (2017). Combined effects of multiple risk factors on asthma in school-aged children. Respir Med. 133: 16-21.
39. Jago R, Searle A, Henderson AJ, Turner KM. (2017). Designing a physical activity intervention for children with asthma: A qualitative study of the views of healthcare professionals, parents and children with asthma. BMJ Open. 7:1-8.
40. Gould CF, Perzanowski MS, Evans D, Bruzzese J-M. (2018). Association of exercise-induced wheeze and other asthma symptoms with emergency department visits and hospitalizations in a large cohort of urban adolescents. Respir Med. 135: 42-50.
41. Dima AL, de Bruin M, Van Ganse E. (2016). Mapping the Asthma Care Process: Implications for Research and Practice. J allergy Clin Immunol Pract. 4:868-876.
42. Hossny E, Caraballo L, Casale T, El-Gamal Y, Rosenwasser L. (2017). Severe asthma and quality of life. World Allergy Organ J. 10:28.
43. Valero-moreno S, Pérez-Marín M, Montoya-Castilla I, Castillo-Corullón S, Ramírez-Aguilar Á, et al. (2018). Emotional distress in family caregivers of adolescents with bronchial asthma: analysis of its predictors. Arch Argent Pediatr. 116: 234-240.
44. Forno E, Gogna M, Cepeda A, Yañez A, Solé D, et al. (2015). Asthma in Latin America. Thorax. 70:898-905.
45. Seid M, D'Amico EJ, Varni JW, Munafo JK, Britto MT, Kercsmar CM, et al. (2012). The in vivo adherence intervention for at risk adolescents with asthma: report of a randomized pilot trial. J Pediatr Psychol. 37: 390-403.
46. Joseph CLM, Ownby DR, Havstad SL, Saltzgaber J, Considine S, et al. (2013). Evaluation of a web-based asthma management intervention program for urban teenagers: reaching the hard to reach. J Adolesc Health. 52: 419-426.