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KNOWLEDGE ABOUT BRONCHIAL ASTHMA: ADOLESCENTS AND THEIR PARENTS

CONHECIMENTOS SOBRE A ASMA BRÔNQUICA: ADOLESCENTES E SEUS PAIS

CONOCIMIENTOS SOBRE EL ASMA BRONQUIAL: ADOLESCENTES Y SUS PADRES

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ABSTRACT

Objectives: To evaluate the knowledge about bronchial asthma in adolescents with the disease and their parents, through a questionnaire of sociodemographic data and clinical profile and the "Asthma Knowledge Questionnaire".

Methodology: This is a descriptive and exploratory study. In a population of 876 individuals, in which 477 are male and 399 are female, we selected for our target population, adolescents aged between 10 and 19 years old in a sample of 77 adolescents. Of these, 51 are male and 26 are female. Only 29 parents and 29 adolescents agreed to participate in the study.

Data were collected through two questionnaires "Sociodemographic characterization and clinical profile" (Félix, 2017), which included questions on housing and hygiene conditions, lifestyles, risk factors, disease management, and therapeutic adherence. And the "Asthma Knowledge Questionnaire" (Ho *et al*, 2003), translated and adapted for the Portuguese population (Lopes, Delgado, & Ferreira, 2004), which reflects knowledge about asthma symptoms, risk factors, treatment, and management. Descriptive analysis techniques were used to characterize the data.

Results: The sample is composed of 29 adolescents and 29 parents, with 89.7% of parents being female and 10.3% male. Regarding adolescents, 27.6% were female and 69% were male. As for academic qualifications, most of the parents have a high school education (37.9%) and most of the adolescents have a high school education (37.9%). The parents have an average age of 45.07 years and the adolescents, 14.72. We found that the mean scores of parents and adolescents were 13.241 and 12.320, respectively. There is no correlation between the parents' and the adolescents' knowledge, showing that when the parents' knowledge increases, the children's knowledge also increases.

Conclusion: We found that there is a knowledge deficit both among adolescents and their parents in different areas, which is why it is imperative to act together with them in order to increase their knowledge and skills to act effectively and early regarding the signs, symptoms and risk factors triggering bronchial asthma attacks.

Keywords: Adolescents; Bronchial Asthma; Community Health; Knowledge; Parents.

RESUMO

Objetivos: Avaliar os conhecimentos sobre asma brônquica nos adolescentes portadores da doença e dos seus pais através do questionário de dados sociodemográficos e perfil clínico e do questionário *"Asthma Knowledge Questionnaire"*.

Metodologia: Trata-se de um estudo descritivo e exploratório. Numa população de 876 indivíduos, em que 477 são do género masculino e 399 do género feminino, foi selecionada para a nossa população alvo, os adolescentes na faixa etária entre os 10 anos e os 19 anos numa amostra de 77 adolescentes. Destes, 51 são do género masculino e 26 do género feminino. Apenas 29 pais e 29 adolescentes aceitaram participar no estudo.

A recolha de dados foi realizada através de dois questionários "Caracterização sociodemográfico e perfil clínico" (Félix, 2017) o questionário engloba questões relativas às condições habitacionais e de higiene, estilos de vida, fatores de risco, gestão da doença e adesão à terapêutica. E o questionário *"Asthma Knowledge Questionnaire"* (Ho *et al*, 2003), traduzido e adaptado para a população portuguesa (Lopes, Delgado & Ferreira, 2004), que reflete conhecimentos sobre sintomatologia, fatores de risco, tratamento e gestão da asma. Foram utilizadas técnicas de análise descritiva para caracterizar os dados.

Resultados: A amostra é composta por 29 adolescentes e 29 pais, sendo que 89,7% dos pais são do género feminino e 10,3% do género masculino. Relativamente aos adolescentes, 27,6% do género feminino e 69% do género masculino. Quanto às habilitações literárias constata-se que a maior parte dos pais tem o ensino secundário (37,9%) e os adolescentes a maioria tem o 2.º Ciclo (37,9%). Os pais apresentam uma média de idade de 45,07 anos e os adolescentes de 14,72. Foi observado que a média das pontuações dos pais e dos adolescentes foi 13,241 e de 12,320, respetivamente. Não existe correlação entre os conhecimentos dos pais e os dos adolescentes constatando-se que, quando os conhecimentos dos pais aumentam os dos filhos também aumentam.

Conclusão: Foi observado que existe um défice de conhecimentos tanto da parte dos adolescentes como da parte dos seus pais em diferentes áreas, razão pela qual é imperativo atuar junto dos mesmos, por forma a aumentar os seus conhecimentos e capacidades para atuarem eficaz e precocemente perante os sinais, sintomas e fatores de risco desencadeantes das crises de asma brônquica.

Palavras-chave: Adolescentes; Asma Brônquica; Conhecimentos; Pais; Saúde Comunitária.

RESUMEN

Objetivos: Evaluar el conocimiento sobre el asma bronquial en adolescentes con la enfermedad y sus padres, a través de un cuestionario de datos sociodemográficos y perfil clínico y el "Cuestionario de Conocimiento sobre el Asma".

Metodología: Se trata de un estudio descriptivo y exploratorio. En una población de 876 individuos, en la que 477 son hombres y 399 son mujeres, seleccionamos para nuestra población objetivo a adolescentes de entre 10 y 19 años en una muestra de 77 adolescentes. De ellos, 51 son hombres y 26 son mujeres. Sólo 29 padres y 29 adolescentes aceptaron participar en el estudio.

Los datos se recogieron a través de dos cuestionarios "Caracterización sociodemográfica y perfil clínico" (Félix, 2017), que incluían preguntas sobre condiciones de vivienda e higiene, estilos de vida, factores de riesgo, manejo de la enfermedad y adherencia terapéutica. Y el "Cuestionario de conocimientos sobre el asma" (Ho *et al*, 2003), traducido y adaptado para la población portuguesa (Lopes, Delgado y Ferreira, 2004), que refleja los conocimientos sobre los síntomas del asma, los factores de riesgo, el tratamiento y el manejo. Se utilizaron técnicas de análisis descriptivo para caracterizar los datos.

Resultados: La muestra está formada por 29 adolescentes y 29 padres, siendo el 89,7% de los padres mujeres y el 10,3% hombres. En cuanto a los adolescentes, el 27,6% eran mujeres y el 69% hombres. En cuanto a las calificaciones académicas, la mayoría de los padres tienen estudios secundarios (37,9%) y la mayoría de los adolescentes tienen estudios secundarios (37,9%). Los padres tienen una edad media de 45,07 años y los adolescentes de 14,72 años. Se comprobó que las puntuaciones medias de los padres y los adolescentes eran de 13,241 y 12,320, respectivamente. No hay correlación entre los conocimientos de los padres y los de los adolescentes, y se comprobó que, cuando aumentan los conocimientos de los padres, también aumentan los de los hijos.

Conclusión: Encontramos que tanto los adolescentes como sus padres carecen de conocimientos en diferentes áreas, por lo que es fundamental trabajar con ellos para aumentar sus conocimientos y habilidades para actuar de forma temprana y eficaz frente a los signos, síntomas y factores de riesgo que desencadenan las crisis de asma bronquial.

Descriptores: Adolescentes; Asma Bronquial; Conocimientos; Padres; Salud Comunitaria.

INTRODUCTION

Chronic respiratory diseases (CKD) are diseases of the airways and other structures of the lungs, highlighting Asthma, Chronic Obstructive Pulmonary Disease (COPD) and Sleep Apnea Syndrome (SAS), for their high prevalence. In Portugal, CKD tend to increase their prevalence since they are one of the main causes of morbidity and mortality[1].

Asthma is a chronic respiratory disease that affects about 1 to 18% of the population in several countries. It is usually characterized by chronic inflammation of the airways causing respiratory symptoms, such as, wheezing, chest tightness, and chest oppression. These symptoms may vary over time and in intensity and may still become persistent due to air flow limitation[2].

According to the Identity Card of Indicators of Monitoring and Contracting of Community Care Units (CCU), asthma is a problem that requires intervention in order to increase adherence to the therapeutic regimen and avoid going to the emergency for symptomatic uncontrollability[3].

Thus, it is imperative to work with this population to minimize risk factors and simultaneously minimize symptoms for the emergence of new attacks, in order to contribute to an adequate adherence to the therapeutic regime. Therefore, it is a priority to assess knowledge about the pathology, of both adolescents and their parents, using effective interventions that promote healthy gains in this population.

To carry out this study, it was essential to know the prevalence of the problem in question, in order to ensure better control of symptoms and the emergence of new attacks. The purpose will be to contribute to a greater adequate adherence to the therapeutic regime, thus obtaining health gains resulting from appropriate nursing interventions.

The theoretical basis was elaborated using the latest scientific evidence found in national and international sources, namely the World Health Organization (WHO), the Portuguese Society of Pulmonology (SSP), the European Lung Foundation, the General Directorate of Health (DGS) and Community Care Units (CCU) through the Identity Card of Monitoring and Contracting Indicators. Most studies unveiled the urgent need for a comprehensive intervention in respiratory diseases, specifically in asthma, in order to empower patients and family members to minimize attacks and avoid unnecessary trips to emergency services.

Adolescence is a complex stage of the life path, experienced differently, closely related to physical, emotional and cognitive maturity. It is a phase of great complexity and of great demand for the adolescent, and the presence of a chronic disease such as asthma can cause a higher level of disturbance, affecting both their development and quality of life. Adolescents should have adequate knowledge about the disease, control of intrinsic and extrinsic risk factors, in order to carry out an appropriate question of this pathology.

Thus, this study aims to evaluate the knowledge about bronchial asthma in adolescents and their parents, whose results will be used to subsequently identify health intervention needs, either individually or in a group.

THEORETICAL BASIS

Asthma is a respiratory disease that causes inflammation and edema in the airways, which in turn reduces the passage of air to the lungs[4].

Chronic respiratory diseases are characterized by changes in the normal state of the airways or other lung structures. The most frequent respiratory diseases are COPD and Asthma[5].

Asthma is one of the most common noncommunicable diseases among children and adolescents. This is characterized mainly by difficulty breathing, wheezing, coughing, tiredness and feeling of chest pressure. These symptoms vary in severity and frequency from patient to patient, worsening during physical activity or at night, thus causing daytime fatigue and poor performance in school activity[4].

The prevalence of chronic respiratory diseases in Portugal is around 40%, and tends to increase. Regarding asthma, this same prevalence is 10% in Portugal, with hospitalization being quite frequent[5].

Risk factors that influence the development of asthma are genetic predisposition, as well as environmental exposure to inhaled substances and particles, causing allergic reactions or irritation of the airways. The internal allergens to housing identified are mites of household dust, bedding, carpets and upholstered furniture, in addition to animal fur. As external allergens, we have environmental pollution from which pollen and mold, chemical irritants such as tobacco smoke, and air pollution are identified[4].

In Portugal there are about 600,000 asthma patients. Estimations show that it affects about 11% of children aged between 6 and 7 years; 12% between 13 and 14 years and 5% of adults between 20 and 44 years[6].

Respiratory diseases are representative of the third cause of death in Portugal and are expected to occupy the first place by 2030[7]. Death from asthma is low and has decreased in recent years in Europe. Every 9 to 12 deaths are due to anaphylaxis with asthma caused by food allergies[8]. Approximately one third of the population will develop asthma at some point in their life, namely between the ages of 5 and 80, most of them before the age of 20, but it is likely to start in childhood[8].

Although asthma has no cure, the patient can enjoy a good quality of life when it is well controlled and with adequate treatment, not neglecting the importance of avoiding its risk factors[4].

Poor adherence to the treatment of chronic diseases is a global problem, compromising its effectiveness[10]. Poor adherence to therapy affects effective control of the disease, increasing access to health services including emergency services, which in turn will increase health care costs. Adherence to the therapeutic regimen in bronchial asthma is central to disease control. A correct adherence to therapy promotes effective control of the disease and therefore a better quality of life. Adherence to therapy ranges from 30% to 70% in children and adults[9].

It is essential that health professionals ensure a high level of knowledge, both for adolescents and parents, as a starting point for autonomous and conscious decisions in the management of bronchial asthma.

MATERIAL AND METHODS

A descriptive and exploratory study was conducted between March and August 2021. The population included 876 individuals, in which 477 are male and 399 female, and our target population consisted adolescents aged 10 to 19 years in a sample of 77 adolescents. Of these, 51 are male and 26 female.

The fact that the adolescents were diagnosed with Bronchial Asthma and were between 10 and 19 years old was established as inclusion criteria.

Regarding parents, the following inclusion criteria were established: parents of adolescents diagnosed with Bronchial Asthma and aged between 10 and 19 years.

The study included 29 adolescents and 29 parents, who answered the questionnaires presented.

We excluded 40 adolescents and parents who refused to participate in the study and, later, 8 more, who after several telephone attempts did not answer.

The methodology used in this study consists of the sociodemographic data questionnaire and clinical profile and the questionnaire "Asthma Knowledge Questionnaire", both applied to adolescents and their parents. The first questionnaire reflects the sociodemographic data and the clinical profile of the target population, in order to understand their lifestyles, risk factors and adherence to therapy. The questions are directed to housing conditions, cleaning of the same, disease management and adherence to therapy[11].

The second questionnaire used is the "Asthma Knowledge Questionnaire" (AKQ), original version of 2003. The present study used the translated and adapted version for the Portuguese population in 2004. The questionnaire consists of 25 statements in order to assess the knowledge of adolescents and their parents about bronchial asthma, namely knowledge about symptoms, risk factors, treatment and management of asthma (Chart 1↗).

Descriptive analysis techniques were used to characterize the data using the Statistical Package for the social Sciences (SPSS) software, version 27.

The adolescents and their parents selected to participate in the study were informed and clarified that the study would be anonymous and voluntary through informed consent.

The study was approved by the Ethics Committee and approved by the Board of Directors of the Local Health Unit of Baixo Alentejo (ULSBA).

RESULTS

For organizational reasons, the presentation of the results is divided into (i) sociodemographic characterization of parents and adolescents; (ii) characterization of the clinical profile and (iii) results of knowledge about bronchial asthma of adolescents, parents and both (adolescents and parents).

Sociodemographic characterization

The sample consisted of 29 parents and 89.7% of the parents are female and 10.3% male and 29 adolescents, being 27.6% female and 69% male.

As for the educational qualifications, most of the parents have secondary education (37.9%), 13.8% Graduate, 24.1% the 3rd cycle, 10.3% have the 1st cycle, 6.9% have master's degree and 3.4% the 2nd cycle.

In adolescents, 37.9% have the 3rd Cycle, 34.5% the Secondary, 24.1% have the 2nd Cycle, and 3.4% Graduate. The adolescents' qualifications are in accordance with their age.

Parents' age ranged from 35 years to 58 years, with a mean age of 45.07 and a standard deviation of 6.380. Adolescents' age varied between 10 and 19 years, with a mean of 14.72 and standard deviation of 2.604. (Chart 2↗).

Characterization of the clinical profile

The clinical profile of adolescents was characterized, using questions related to aspects relevant to health promotion, disease prevention and disease management and treatment.

In the questions about housing conditions, 86.2% have windows in the room, 75.9% say that their room is between 18 and 20°C, 48.3% say that the walls and the floor have no mold, 86.2% do not have curtains with much fabric or folds in the room, 100% of teenagers have no more than 3 carpets in the room and 89.7% do not use fur blankets. As for the floor, none of the respondents has carpet in the room, 82.8% use vacuum cleaner to clean the house, 72.4% do not use broom to perform daily cleaning of the room and domestic animals of 58.6% do not live indoors.

In the management of therapy, 82.8% of adolescents claim to have healthy lifestyle habits, but only 13.8% do breathing exercises, 31% take preventive vaccines, 89.7% have always available at home medications to take whenever an attack starts, and 10.3% say they do not always have the medication available.

Only 2 adolescents were hospitalized due to asthma attacks and 13.8% had to resort to the emergency service for asthma crises. As for the number of visits to the emergency service, 2 had to go once and 1, three times.

Results of knowledge about bronchial asthma of parents, adolescents and both (parents and adolescents)

Observing Chart 3↗, parents' correct answers range between 100% in questions no. 3 "Smoking at home can worsen a child's asthma" and no. 6 "At the beginning of an asthma attack, you may experience chest tightness or wheezing" and 13.87% in question no. 22 "A relief inhaler (bronchodilator or "pump") is used to reduce inflammation of the lungs".

Regarding the Asthma Knowledge questionnaire, we obtained the answer of 29 parents and only 20 adolescents, and 9 adolescents did not answer the questionnaire. Thus, the totality of 49 responses.

In adolescents the right answers range from 100% in questions no. 3 "Smoking at home can worsen a child's asthma", no. 5 "Only a doctor is able to avoid an asthma attack" and no. 6 "At the beginning of an asthma attack, you may feel a tightness in the chest or wheezing ("kittens or wheezing")" and 10% in question no. 22 "A reliever inhaler (bronchodilator or "pump") is used to reduce inflammation of the lungs".

Overall, questions no. 3 and no. 6 obtained 100% of correct answers, and question no. 22 obtained the lowest percentage of correct answers 12.2%.

AKQ questions were grouped into 4 groups: (i) Group I – Questions related to attack symptoms, triggering factors, treatment and evolution; (ii) Group II – Questions related to asthma symptoms, pathophysiology, causes, treatment of attacks, emotional factors, sport, and eviction measures; (iii) Group III – Questions related to disease monitoring, evolution, attitude towards crises, viral disease, climate, exercise and inhalation technique; (iv) Group IV – Questions related to the concept of allergen and mechanisms of bronchodilator action (Chart 4↗).

The questions with the highest percentage of correct answers were questions no. 3 and no. 6, both belonging to Group I. The questions with the lowest percentage of answers were questions no. 18 and no. 22, both belonging to Group IV. All adolescents answered correctly question no. 5 "Only a doctor is able to avoid an asthma attack", which belongs to Group II.

After analyzing the results, it is confirmed that the questions of Group IV (questions related to the concept of allergen and mechanisms of bronchodilator action) are those that show a greater unawareness on the part of both parents and adolescents.

With a significant percentage of wrong answers are questions no. 2 (77.6%) and no. 7 (65.3%), belonging to Group II (questions related to asthma symptoms, pathophysiology, causes, treatment of attacks, emotional factors, sport, and eviction measures) and Group III (questions related to disease monitoring, evolution, attack attitude, viral disease, climate, exercise and inhalation technique), respectively.

DISCUSSION

Bronchial asthma is a chronic respiratory disease with great impact on today's society, affecting about 235 million people worldwide and estimates in Portugal show that about 6.8% of the population suffers from this same pathology[9].

Health education is essential for adequate self-control/self-management of bronchial asthma, because in this way asthma crises/attacks can be prevented when the patient and their caregiver have a broad knowledge about the pathology in order to identify and in turn avoid triggering factors and their symptoms[13].

The studies involved in the analysis of this research take place between 2008 and 2018, carefully presenting their objectives, the method of data collection and the sample.

The conclusion of the studies used allowed observing that their common goal was to evaluate the knowledge of adolescents and their parents/caregivers concerning bronchial asthma.

Of the studies consulted, five were conducted in Portugal and one in Brazil.

In the present study, there was a predominance of male adolescents (69%) which meets the scientific evidence found in other studies[11-12].

In turn, the mothers mostly answered the questionnaires corresponding to (89.7%) as corroborated in the studies consulted[11-12]. The results suggest that the mothers are the main companion and support of their children in case of illness.

As for education, adolescents have mostly the 2nd cycle (34.5%) and their parents/caregivers mostly have completed secondary education (37.9%). The adolescents' qualifications are in accordance with their age. A study[12] showed that adolescents have mostly the 3rd cycle and in turn the parents are between the 1st and 2nd cycle. In another study[11], both adolescents and their parents/caregivers had as educational qualifications between 1st and 3rd cycle.

Regarding housing conditions, the present study reveals that, although most rooms 86.2% have good ventilation, 13.8% of the rooms do not have windows, 24.1% say that their room does not have the appropriate temperature, 51.7% say that the walls and the floor have humidity, 13.8% have curtains with much fabric or pleats in the room, all adolescents report having no more than 3 carpets in the room and 10.3% use fur blankets. As for the floor, none of the respondents has carpet in the room, 17.2% do not use vacuum cleaner to clean the house and 27.6% use broom to perform daily cleaning of the room. Regarding domestic animals, 41.4% say they remain indoors. A study[13] found that the cleaning of the adolescent's room was carried out with broom by 25% of the families, being performed only once a week, most of the children had carpets and curtains in the room and 20% had animals indoors.

As for the practice of healthy living habits 17.2% of adolescents say they do not have healthy lifestyle habits, 86.2% say they do not perform breathing exercises, 69% do not make use preventive vaccinations and 10.3% say they do not always have emergency medication available to prevent asthma attacks at home. It is also worth mentioning that 6.9% of adolescents have already been hospitalized for asthma attacks and that 13.8% required emergency service for the same reasons. Also in a study[10-13], there was the occurrence of a set of factors that could be modified, in order to provide a higher quality of life to those adolescents with bronchial asthma. Thus arises an imperative need to intervene with those adolescents and parents/caregivers, in order to provide them with skills that allow them to intervene properly, identification of risk factors and symptoms triggering bronchial asthma attacks.

In this scenario and context, health education is central to the empowerment process of the patient and family, thus the health professional must intervene with this population using strategies that lead them to modify their behaviors[11].

However, we can say that, although parents receive guidance from the health professional, they are not fully equipped with knowledge about the pathology[13]. A study[14] corroborates the above and highlights that parents feel the need for information regarding the causes of the disease, triggering factors of crises, prevention measures, treatment and medication.

In the overall analysis of the Asthma Knowledge Questionnaire, applied to parents and adolescents, the sum of the "wrong answers" and "don't know" varied between 87.8% and 6.1%. Question no. 22 has the highest percentage and Question no. 5, the lowest percentage. These questions are related to Group II and IV, respectively. In a study[12], the questions with the highest percentage of "wrong" and "don't know" answers were the questions

related to knowledge about disease monitoring, causes, evolution, allergen concept, the possibility of not perceiving the worsening of the disease, mechanism of action of the bronchodilator and inhalation technique, attitudes towards crises and the practice of sport.

In relation to the questionnaires applied to parents, the sum of the "wrong" and "don't know" answers varied between 86.2% and 6.9%, with the highest percentage falling on question no. 22 (Group IV) and the lowest percentage, on questions 4, 11 and 13 (Group I). In a study[11], questions related to disease monitoring, evolution, attitude towards crises, viral disease, climate, exercise and inhalation technique and the concept of allergen of action of the bronchodilator respectively were at the origin of the "wrong" and "don't know" answers. In another study[12], they did were unable to answer and answered erroneously the questions related to the use of MISF, evolution, causes, concepts of allergen and practice of physical exercise in cold weather, mechanism of action of the bronchodilator and inhalation technique and the need to go to the hospital in case of a crisis. In a study[14], the questions related to knowledge about disease monitoring, causes, evolution, attitude towards the crisis, viral disease, exercise and inhalation technique were the origin of "wrong" and "don't know" answers.

In the questionnaire applied to adolescents, the sum of the "wrong" and "don't know" answers varied between 90% and 10%, the highest percentage fell equally on question no. 22 (Group IV) and question no. 13 (Group I) with a lower value. In a study[11], "wrong" and "don't know" answers are related to the questions disease monitoring, evolution, attitude towards crisis, viral disease, climate, exercise and inhalation technique, concept of allergen and mechanism of action of the bronchodilator. In another study[12], the questions related to the use of MISF, evolution, causes, concepts of allergen and practice of physical exercise in cold weather, the need to go to the hospital in case of a crisis and influence of respiratory disease on the appearance of asthma were the origin of the "wrong" and "don't know" answers. In a study[14], the "wrong" and "don't know" answers fall on the questions of Group II, III, and IV.

In the present study, after analyzing the individual knowledge of parents and adolescents, the results revealed a lack of knowledge in questions related to Group IV and in questions related to Group I.

Thus, in a first approach, it can be inferred that adolescents' knowledge about asthma is related to their parents' knowledge.

Observing Chart 4, the questions of Group IV are those that reveal a greater unawareness on the part of both parents and adolescents.

With a significant percentage of "wrong" and "don't know" answers arise questions no. 7 (65.3%), no. 19 (53.1%), no. 10 and no. 17 (44.9%) corresponding to Group III, questions no. 2 (77.6%), no. 1 (44.9%) and no. 25 (42.9%) belonging to Group II.

Comparison of results between adolescents and parents

When comparing parents' knowledge about bronchial asthma with that of adolescents, there was no major discrepancy between the knowledge of parents and adolescents, as noted earlier. Therefore, when parents' knowledge increases, so does children's.

In a study[14], there was also no correlation between the knowledge of parents and children, which led the authors to affirm the non-existence of a statistically significant difference.

The limitations of the present study are essentially related to the reduced sample size. Future studies should interview parents and adolescents personally in order to increase their interest, which in this study was not possible due to the limitations imposed by the pandemic we went through.

CONCLUSION

This study was conducted in a CCU of ULSBA and aimed to evaluate the knowledge of adolescents and their parents about bronchial asthma.

Both adolescents as their parents lack knowledge in different areas (such as allergen concepts, disease monitoring issues, evolution, attitude to the crisis, viral disease, climate, exercise and inhalation technique), which is why it is imperative to act on them in order to increase their knowledge and abilities to act effectively and early before signs, symptoms and risk factors triggering bronchial asthma attacks.

It is important to present and discuss these results with the multidisciplinary team in order to find strategies to reach the community with this pathology in order to have an articulation between the care units in the community, through school health projects, personalized health care units and hospital care.

The application of the questionnaires used in this study provide important evidence for the planning of health education sessions to be carried out in the future.

Authors' contributions

SD: Design and coordination of the study, collection, storage and analysis of data, review and discussion of results.

ES: Study design, review and discussion of results.

SJ: Study design, review and discussion of results.

EC: Study design and coordination, data analysis, review and discussion of results.

All authors read and agreed with the published version of the manuscript.

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Chart 1 – Asthma Knowledge Questionnaire.[↖]

Question No.	Questions	
1	Cough is not as asthma symptom.	F
2	Asthma is an inflammation of the lungs.	F
3	Smoking at home can worsen a child's asthma.	T
4	Asthma attacks can arise when smelling paint, gasoline, smoke, or pollution.	T
5	Only a doctor is able to avoid an asthma attack.	F
6	At the beginning of an asthma attack, you may experience chest tightness or wheezing.	T
7	A MISF (Maximum Instantaneous Spirometer Flow) recording is used to assure the sinuses are open (breathing test to detect if there is sinusitis).	F
8	A child stops being asthmatic if, for several years, they no longer have symptoms such as chest tightness or wheezing.	F
9	Asthma is an emotional or psychological disease.	F
10	Most asthmatic children have to go to the hospital in case of an asthma attacks.	F
11	Some people can get better with age.	T
12	Doctors don't know well why certain people have asthma, but do know what can trigger an attack.	T
13	With an adequate treatment, most asthmatic children can enjoy a normal life without any limitation of activities.	T
14	Getting nervous, crying or laughing can trigger an asthma attack.	T
15	Those who don't have asthma until the age of 40 will never have.	F
16	Asthmatic children should not practice sports where they have to run very well.	F
17	In younger children, asthma sometimes arises after a respiratory disease caused by a virus.	T
18	An allergen is the antibody that asthmatics lack.	F
19	A person's asthma can worsen without noticing any breathing change.	T
20	Exercising in cold weather can trigger as asthma attack.	T
21	Both fish and birds make good pets for an asthmatic child.	F
22	A reliever inhaler (bronchodilator or "pump") is used to reduce inflammation of the lungs.	F
23	Some asthma medications only work if they are taken every day.	T
24	There's no need to shake before using most asthma inhalers.	F
25	There are less asthmatic people today than 10 years ago.	F

Source: Asthma Knowledge Questionnaire (AKQ), developed by Ho. and colleagues (2003). The present study used the version translated and adapted to the Portuguese population by Lopes, Delgado and Ferreira (2004).

Chart 2 – Sociodemographic characterization (sex, educational qualifications and age) of parents and adolescents.[↖]

Variable		Parents (n = 29)		Adolescents (n = 29)	
		n	%	n	%
Sex	Female	26	89.7	8	27.6
	Male	3	10.3	20	69.0
	Unanswered	0	0	1	3.4
Educational qualifications	1st Cycle	3	10.3	0	0
	2nd Cycle	1	3.4	7	24.1
	3rd Cycle	4	24.1	11	37.9
	Secondary	11	37.9	10	34.5
	Graduate	4	13.8	1	3.4
	MSc	2	6.9	0	0
	PhD	0	0	0	0
	Other	1	3.4	0	0
		Parents (n = 29)		Adolescents (n = 29)	
Age	Mean	45.07		14.72	
	Maximum	58		19	
	Minimum	35		10	
	Standard Deviation	6.380		2.604	

Chart 3 – Absolute and relative frequencies of the knowledge of parents, adolescents and overall.[↖]

Variable	Parents (n = 29)						Adolescents (n = 20)						Overall (n = 49)					
	True		False		Don't know		True		False		Don't know		True		False		Don't know	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Question 1	18	62.1	7	24.1	4	13.8	9	45.0	7	35.0	4	20.0	27	55.1	14	28.6	8	16.3
Question 2	6	20.7	17	58.6	6	20.7	5	25.0	15	51.7	0	0	11	22.4	32	65.3	6	12.2
Question 3	29	100	0	0	0	0	20	100	0	0	0	0	49	100	0	0	0	0
Question 4	27	93.1	1	3.4	1	3.4	17	85.0	1	5.0	2	10.0	44	89.8	2	4.1	3	6.1
Question 5	26	89.7	2	6.9	1	3.4	20	100	0	0	0	0	46	93.9	2	4.1	1	2.0
Question 6	29	100	0	0	0	0	20	100	0	0	0	0	49	100	0	0	0	0
Question 7	11	37.9	13	44.8	5	17.2	6	30.0	5	25.0	9	45.0	17	34.7	18	36.7	14	28.6
Question 8	21	72.4	5	17.2	3	10.3	12	60.0	4	20.0	4	20.0	33	67.3	9	18.4	7	14.3
Question 9	16	55.2	8	27.6	5	17.2	13	65.0	6	30.0	1	5.0	29	59.2	14	28.6	6	12.2
Question 10	17	58.6	12	41.4	0	0	10	50.0	8	40.0	2	10.0	27	55.1	20	40.8	2	4.1
Question 11	27	93.1	2	6.9	0	0	17	85.0	2	10.0	1	5.0	44	89.8	4	8.2	1	2.0
Question 12	24	82.8	4	13.8	1	3.4	14	70.0	2	10.0	4	20.0	38	77.6	6	12.2	5	10.2
Question 13	27	93.1	2	6.9	0	0	18	90.0	1	5.0	1	5.0	45	91.8	3	6.1	1	2.0
Question 14	21	72.4	7	24.1	1	3.4	14	70.0	3	15.0	3	15.0	35	71.4	10	20.4	4	8.2
Question 15	21	72.4	6	20.7	2	6.9	16	80.0	2	10.0	2	10.0	37	75.5	8	16.3	4	8.2
Question 16	19	65.5	9	31.0	1	3.4	12	60.0	7	35.0	1	5.0	31	63.3	16	32.7	2	4.1
Question 17	16	55.2	6	20.7	7	24.1	11	55.0	2	10.0	7	35.0	27	55.1	8	16.3	14	28.6
Question 18	6	20.7	12	41.4	11	37.9	3	15.0	3	15.0	14	70.0	9	18.4	15	30.6	25	51.0
Question 19	15	51.7	12	41.4	2	6.9	8	40.0	7	35.0	5	25.0	23	46.9	19	38.8	7	14.3
Question 20	20	69.0	7	24.1	2	6.9	12	60.0	6	30.0	2	10.0	32	65.3	13	26.5	4	8.2
Question 21	25	86.2	3	10.3	1	3.4	13	65.0	3	15.0	4	20.0	38	77.6	6	12.2	5	10.2
Question 22	4	13.8	24	82.8	1	3.4	2	10.0	18	90.0	0	0	6	12.2	42	85.7	1	2.0
Question 23	20	69.0	6	20.7	3	10.3	14	70.0	4	20.0	2	10.0	34	69.4	10	20.4	5	10.2
Question 24	21	72.4	8	27.6	0	0	13	65.0	6	30.0	1	5.0	34	69.4	14	28.6	1	2.0
Question 25	19	65.5	4	13.8	6	20.7	9	45.0	0	0	11	55.0	28	57.1	4	8.2	17	34.7

Chart 4 – Absolute and relative frequencies of correct answers in the AQK by descending order and group of questions overall, of parents and adolescents.↖

Group	Question	Overall (n = 49)		Question	Parents (n = 29)		Question	Adolescents (n = 20)	
		n	%		n	%		n	%
I	Q3	49	100	Q3	29	100	Q3	20	100
	Q6	49	100	Q6	29	100	Q6	20	100
	Q13	45	91.8	Q4	27	93.1	Q13	18	90.0
	Q4	44	89.8	Q11	27	93.1	Q4	17	85.0
	Q11	44	89.8	Q13	27	93.1	Q11	17	85.0
	Q23	34	69.4	Q23	20	69.0	Q23	14	70.0
II	Q5	46	93.9	Q5	26	89.7	Q5	20	100
	Q12	38	77.6	Q21	25	86.2	Q12	14	70.0
	Q21	38	77.6	Q12	24	82.8	Q14	14	70.0
	Q14	35	71.4	Q14	21	71.4	Q9	13	65.0
	Q16	31	65.3	Q16	19	65.5	Q21	13	65.0
	Q9	29	59.2	Q25	19	65.5	Q16	12	60.0
	Q25	28	57.1	Q1	18	62.1	Q1	9	45.0
	Q1	27	55.1	Q9	16	55.2	Q25	9	45.0
	Q2	11	22.4	Q2	6	20.7	Q2	5	25.0
III	Q15	37	15.5	Q8	21	72.4	Q15	16	80.0
	Q24	34	69.4	Q15	21	72.4	Q24	13	65.0
	Q8	33	67.3	Q24	21	72.4	Q8	12	60.0
	Q20	32	65.3	Q20	20	69.0	Q20	12	60.0
	Q10	27	55.1	Q10	17	58.6	Q17	11	55.0
	Q17	27	55.1	Q17	16	55.2	Q10	10	50.0
	Q19	23	46.9	Q19	15	51.7	Q19	8	40.0
	Q7	17	34.7	Q7	11	37.9	Q7	6	30.0
IV	Q18	9	18.4	Q18	6	20.7	Q18	3	15.0
	Q22	6	12.2	Q22	4	13.8	Q22	2	10.0