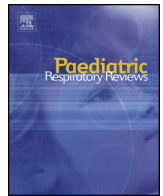




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School intervention in asthma for adolescents: it is time to act

Ana Carla Carvalho Coelho^{1,2,3,*}, Carolina de Souza-Machado^{1,2,3,a},
Adelmir Souza-Machado^{2,3,4,a}

¹ Escola de Enfermagem, Universidade Federal da Bahia, Brazil

² ProAR, Programa para o Controle da Asma na Bahia, Universidade Federal da Bahia, Brazil

³ Programa de Pós-graduação em Medicina e Saúde, Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Brazil

⁴ Instituto de Ciências da Saúde, Universidade Federal da Bahia, Brazil

EDUCATIONAL AIMS

After reading this article, the reader will be able to:

- Recognize the school as a productive environment for health promotion, healthy behaviours and the control of diseases such as asthma in adulthood.
- Understand that health education contributes to the identification of asthma cases at school and increases knowledge of the disease.
- Know that curricular health interventions are a feasible and viable model that may be reproducible in various countries.

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SUMMARY

Asthma is a public health problem that is responsible for significant symptomatology and in extreme cases, premature deaths among adolescents. Lack of knowledge of the disease contributes to both its morbidity and mortality. In this manuscript, we discuss school interventions in asthma, in particular their impacts on improving knowledge of the disease and their ability to both make the school environment safer and reduce morbidity indicators. These interventions have been successful when implemented in higher income countries. Thus, to address the lack of interventions in low and middle income countries, we present an example of an alternative asthma intervention in the school curriculum developed in South America. The model has been proven to be both feasible and relatively inexpensive. It is easily structured by utilizing the staff of the school itself and is capable of being adapted to other countries.

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INTRODUCTION

Asthma is a major public health concern that causes school absenteeism, hospitalizations [1], and premature deaths [2] among adolescents. In addition to causing incalculable personal suffering, asthma has a profound social impact on family members and an economic impact on public-sector managers. Despite the high prevalence of asthma, the disease is underestimated by patients, family members and health professionals [2,3]. Issues such as lack of knowledge of the disease and difficulty accessing relevant information may be responsible for limited and inadequate treatment [3].

* Corresponding author. Programa para o Controle da Asma na Bahia (ProAR). Universidade Federal da Bahia Rua Carlos Gomes, no 270. Salvador Bahia, Brazil. CEP 40060-330. Tel.: +55 71 3013-8461; fax: +55 71 3013-8461.

E-mail addresses: carla.carvalho@ufba.br, anac_cc@yahoo.com.br (A.C.C. Coelho), cdsmachado@ufba.br (C. de Souza-Machado), adelmirm@gmail.com (A. Souza-Machado).

^a Programa para o Controle da Asma na Bahia (ProAR). Universidade Federal da Bahia Rua Carlos Gomes, no 270. Salvador Bahia, Brazil. CEP 40060-330. Tel.: +55 71 3013 8461; fax: +55 71 3013 8461.

One of the strategies intended to mitigate the negative effects of this disease among school-age children is asthma education activities in schools, which have previously been adopted in various parts of the world [4]. Asthma interventions in schools are often implemented in high-income countries, and research findings from these interventions have demonstrated increased knowledge of the disease with a resulting reduction in morbidity indicators [4]. However, few health education initiatives for the prevention and control of asthma in schools have been used in low- and middle-income countries.

Although neither a standardized model for educational intervention in asthma for schools nor a consensus about how morbidity indicators are changed by such interventions exists [5], the authors recognize the potential of these actions to prevent and control asthma among adolescents and to disseminate information about health, not only in the school environment but also into the surrounding community. We also suggest that given a reproducible model, these initiatives may be expanded to low-income countries.

SCHOOL INTERVENTION IN ASTHMA – FOR WHOM IS IT INTENDED?

While several educational interventions in asthma have been realized at schools worldwide and have achieved significant goals, the actual models of these interventions are focused primarily on asthmatic students [5]. The models have aimed to improve knowledge of asthma, develop self-management skills and reduce the psychological burden caused by the disease and the morbidity indicators [4,5]. This strategy is complementary to health services for the prevention of asthma attacks and the control of symptoms.

However, we recognize that when we prioritize only asthmatic students, the school community, including non-asthmatic students, school staff, teachers, parents, caregivers and, by extension, the surrounding community may be excluded from these actions. More comprehensive action involving students and school staff may enable the school to recognize symptoms suggestive of the disease, assist in managing the pharmacological treatment and control of symptoms, act safely in asthma exacerbation situations at school and resolve prejudice and social exclusion between adolescents [1].

SCHOOL INTERVENTIONS IN ASTHMA AS A TOOL TO REDUCE ASTHMA DAMAGE

Irreversible emotional effects and harmful and even permanent socioeconomic consequences are associated with asthma among adolescents. An example of these effects includes mental health disorders such as anxiety and depression; the proportion of asthmatic students with these disorders is more than twice that of students without asthma [6]. Another example is school absenteeism, which is responsible for the loss of 1.5 additional days of school annually compared to non-asthmatic students [7]. Equally important is the quality of life related to the disease, which includes issues such as social isolation due to the fear of discrimination based on asthma and future loss of work productivity [6]. Hospitalizations and emergency room visits are also frequent among asthmatic adolescents [8].

Given this scenario, the development of asthma interventions in schools is associated with positive effects. Reductions in school absenteeism, emergency room visits and hospitalizations due to asthma, with rates of 37%, 49% and 76%, respectively [8], have been reported in distinct regions of the world [4]. However, to positively affect morbidity, these actions should be associated with clinical assistance.

Education about asthma at school, which was developed in isolation, has been effective for teaching self-management and

screening of individuals who have suggestive symptoms but no medical diagnosis; it has also led to considerable improvement in knowledge of asthma [5]. These are clearly the initial steps to reducing morbidity in the medium and long term.

BARRIERS TO IMPLEMENTING SCHOOL INTERVENTIONS IN ASTHMA

Although the results of school interventions have been encouraging, different obstacles to asthma management in schools should be considered, such as a) the lack of communication between students, families, school staff and health services, b) the absence of action plans for asthmatic individuals at school [4], c) the lack of health professionals prepared to diagnose and manage asthma [3,9], and d) the failure of teachers and school staff to provide appropriate care.

A feasible alternative to overcome these obstacles is the dissemination of information about asthma to students, families, the wider community, school staff and health professionals through an open dialogue among universities, as well as school and health services. In addition, training those who disseminate information about asthma can alter morbidity indicators and allow for the identification of possible asthma cases in schools and different community areas [4]. This action might make the school environment safer and promote health awareness among students, contributing to the success of interventions [10].

TRANSPOSING SCHOOL INTERVENTIONS IN ASTHMA TO LOW- AND MIDDLE-INCOME COUNTRIES – A BRAZILIAN EXAMPLE

Implementation of school-based interventions is founded on public policies governing the use of medicine for the control and relief of asthma symptoms within schools, the presence of nurses trained to detect and monitor asthma cases and the training of school staff to address the disease in schools and include asthma education in the school curriculum [11]. Thus, these interventions may require additional financial resources and human capital, which are often not accessible in low- or middle-income countries. These factors can explain the concentration of school asthma interventions in high-income countries as opposed to low- and middle-income countries.

In low- and middle-income countries such as Jordan [12] and Portugal [13], school interventions in asthma have successfully increased knowledge of asthma and have led to a reduction in symptoms [12]. The models applied in these countries aim to train pairs of students to disseminate information about asthma [12] and, similar to the models observed in high-income countries, they include the participation of school staff [12] supported by health professionals [12,13].

In Brazil, which has one of the highest rates of asthma in the world, particularly among adolescents [14], no public policies exist that specifically establish asthma education in schools or regulate the obligations of health professionals in this environment [15]. In some low- and middle-income countries, where health professionals are not legally placed in schools, school teachers can educate school-age children about the prevalence of different chronic diseases [4]. However, few asthma education initiatives have been observed in schools in our country, despite the proven success of these interventions in other countries [4].

In our example, we aimed to spread knowledge of asthma among students and school staff from 2012 to 2014 through a structured intervention. This program was pioneered in our country and was conducted according to national and international public policies that establish health [15] and asthma education [16] in schools. The intervention was aimed at adolescents, staff, teachers and the wider school community and included educational

strategies aimed at both asthmatic and non-asthmatic students. In this intervention, teachers at a public school in the city of Salvador in Northeastern Brazil were able to comprehensively include issues related to asthma in different areas of the school curriculum after being trained by higher education health teachers. The program produced the following positive results:

- Publication of a booklet on asthma directed at students, school staff, parents and the community, which is freely available at: www.ginanobrasil.org.br;
- The ability to identify possible cases of asthma in the absence of a health professional at the school;
- Substantial increases in asthma knowledge after the intervention in the school curriculum; students, teachers, and school staff were more confident about recognizing and preventing exacerbations, as well as managing the disease initially at school and then referring patients/adolescents to a health service.
- Creation of a protocol for the initial management of asthma exacerbations at school for students with and without an asthma diagnosis.

CONCLUSION

School interventions in asthma improve knowledge of the disease, make the school environment safer and can affect morbidity indicators in the medium and long term, especially when associated with clinical monitoring. Interactions between asthma interventions in schools, higher education and health services, as well as the creation of health policies in schools and the extension of these initiatives to the local community to train others are encouraged. In our country, intervention in asthma in the school curriculum is a model that has been proven to be both feasible and relatively inexpensive and is easily structured by utilizing the staff of the school itself. The model may also be adapted to other countries and could be reproduced or even extended to other chronic diseases.

FUTURE RESEARCH DIRECTIONS

- Implementation and evaluation of the curricular intervention in asthma in different regions of Brazil and several other low and middle-income countries that strive to reflect the cultural and political diversity of each region.
- Evaluation of the cost-effectiveness of this type of intervention.
- Further validation of this model of curricular intervention in asthma education conducted by school staff in both asthmatic and non-asthmatic students.

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