DOI 10.18471/rbe.v37.52443
Original Article

EVALUATION OF KNOWLEDGE ABOUT ASTHMA IN TECHNICAL-ADMINISTRATIVE PUBLIC WORKERS OF A PUBLIC UNIVERSITY

AVALIAÇÃO DO CONHECIMENTO SOBRE A ASMA EM SERVIDORES TÉCNICO-ADMINISTRATIVOS DE UMA UNIVERSIDADE PÚBLICA

EVALUACIÓN DEL CONOCIMIENTO SOBRE EL ASMA EN SERVIDORES TÉCNICO-ADMINISTRATIVOS DE UNA UNIVERSIDAD PÚBLICA

Ana Paula Rocha Mendes da Cruz[1]
Deyse Mocelin[2]
Bianca de Matos Magalhães[3]
Ana Carla Carvalho Coelho[4]
Carolina de Souza-Machado[5]

How to cite this article: Cruz APRM, Mocelin D, Magalhães BM, Coelho ACC, Souza-Machado C. Evaluation of knowledge about asthma in technical-administrative public workers of a public university. Rev baiana enferm. 2023;37:e52443.

Objective: to estimate the level of knowledge about asthma of technical-administrative public workers of graduate and postgraduate nursing courses of a public university in Salvador, Bahia. Method: cross-sectional study, conducted with 18 technical-administrative public workers of a public university. Data collection was performed by sending an email with links to the form in Google Forms, between January and May 2021. Data were analyzed using descriptive statistics using SPSS software, 28.0. Results: predominance of women, 77.8% (n=14), mean age 42.11±10.98 years. 55.6% (n=10) of the sample presented unsatisfactory knowledge about asthma in the analysis by domain and by the average of correct answers (X±SD=22.6±7.5 correct answers). Asthma treatment was the most unknown theme in the sample (X±SD=2.77±1.73 correct answers). Conclusion: the level of knowledge about asthma of technical-administrative workers was unsatisfactory in the majority of the sample investigated.

Descriptors: Asthma. Knowledge. Administrative Personnel. Universities. Health Education.

Objetivo: estimar o nível de conhecimento sobre asma de servidores técnico-administrativos do curso de graduação e pós-graduação em Enfermagem de uma universidade pública em Salvador, Bahia. Método: estudo transversal, realizado com 18 servidores técnico-administrativos de uma universidade pública. A coleta de dados foi realizada mediante envio de e-mail com links do formulário no Google Forms, entre janeiro e maio de 2021. Os dados

Corresponding author:Bianca de Matos Magalhães, mattosmbia@gmail.com

[1] Universidade Federal da Bahia, Salvador, BA, Brazil. https://orcid.org/0000-0003-3971-4097.
[2] Universidade Federal da Bahia, Salvador, BA, Brazil. https://orcid.org/0000-0002-4822-1705.
[3] Universidade Federal da Bahia, Salvador, BA, Brazil. https://orcid.org/0000-0002-6120-6446.
[4] Universidade Federal da Bahia, Salvador, BA, Brazil. https://orcid.org/0000-0003-1792-1319.
[5] Universidade Federal da Bahia, Salvador, BA, Brazil. https://orcid.org/0000-0001-7328-9608.

foram analisados por meio da estatística descritiva com uso do software SPSS, 28.0. Resultados: encontrou-se predominância do sexo feminino 77,8% (n=14), média de idade 42,11±10,98 anos. Verificou-se que 55,6% (n=10) da amostra apresentou conhecimento insatisfatório sobre asma na análise por domínio e pela média de acertos (X±DP=22,6±7,5 acertos). O tratamento da asma foi a temática mais desconhecida pela amostra (X±DP=2,77±1,73 acertos). Conclusão: o nível de conhecimento sobre asma dos servidores técnico-administrativos foi insatisfatório na maioria da amostra investigada.

Descritores: Asma. Conhecimento. Pessoal Administrativo. Universidades. Educação em Saúde.

Objetivo: estimar el nivel de conocimiento sobre asma de servidores técnico-administrativos del curso de graduación y posgrado en Enfermería de una universidad pública en Salvador, Bahía. Método: estudio transversal, realizado con 18 servidores técnico-administrativos de una universidad pública. La recopilación de datos se realizó mediante el envío de correos electrónicos con links del formulario en Google Forms, entre enero y mayo de 2021. Los datos fueron analizados por medio de la estadística descriptiva con uso del software SPSS, 28.0. Resultados: se encontró predominancia del sexo femenino 77,8% (n=14), media de edad 42,11±10,98 años. Se verificó que 55,6% (n=10) de la muestra presentó conocimiento insatisfactorio sobre asma en el análisis por dominio y por la media de aciertos (X±DE=22,6±7,5 aciertos). El tratamiento del asma fue la temática más desconocida por la muestra (X±DE=2,77±1,73 aciertos). Conclusión: el nivel de conocimiento sobre asma de los servidores técnico-administrativos fue insatisfactorio en la mayoría de la muestra investigada.

Descriptores: Asma. Conocimiento. Personal Administrativo. Universidades. Educación en Salud.

Introduction

Asthma is a chronic, heterogeneous and multifaceted respiratory disease that reaches about 1% to 18% of the population depending on the region of the world[1-2]. There are about 330 million people with asthma in the world, of which approximately 20 million are Brazilian[3-5]. Around 250,000 asthma-related deaths per year are estimated worldwide[6].

Potentially severe, asthma is characterized by bronchial hyper responsiveness and chronic inflammation of the lower airways, leading to variable airflow limitation[1]. It may be related to individual genetic inheritance and environmental interactions[1].

At the same time, despite its severity, heterogeneity and high prevalence in our country, asthma is still an underdiagnosed disease[7], which may lead to inadequate treatment. This fact can cause negative social and economic impacts, which can be harmful and irreversible for the patient, their family and network[5].

Asthma is an expensive disease for the whole society, generating a high consumption of financial capital, especially when the disease is not controlled(1-2,8). A routine of exacerbations can lead to insomnia, daytime fatigue, social isolation, and promote absenteeism at work and low labor productivity, which may lead to loss of quality of life(5,8-9).

Asthma exacerbations can be prevented with adequate management of the disease; satisfactory knowledge can help in this context, improving the quality of life of a person with asthma[1]. Previous studies on asthma have found that a considerable portion of this population, as well as its network, does not have access to adequate information about the disease, being unaware of basic concepts that may impact the management of the disease(5,10-11). Therefore, it is essential to improve the level of knowledge about the disease for better management of comorbidity(1,10).

Since asthma is a disease that can be controlled, adequate knowledge about concept, triggering factors and treatment can contribute to better management of the disease. Thus, it is pertinent for the whole society to know about asthma and for educational actions aimed at raising awareness about the disease[10]. The purpose of health education, regarding knowledge about asthma, is to increase disease control and reduce the high rate of morbidity and under diagnosis,

resulting in a significant improvement in people's quality of life(1,7,10).

In this perspective, it is important to evaluate the knowledge about asthma in the different populations, in order to identify the knowledge needs, as well as the best way to provide a more effective health education for the whole community, improving the quality of life and better coping with the disease[12].

That said, the Public Universities stand out as spaces for construction and generation of knowledge. These are fruitful spaces for health education actions, since they combine teaching, research and extension[13], pillars necessary for the production of knowledge for society[14]. Nevertheless, with regard to asthma, it is observed that the studies conducted with the university community are mostly directed to professors and students.

In a search conducted on the portal of the Virtual Health Library (VHL), with the descriptors *Asma* AND *Pessoal Administrativo*, no studies related to the target audience of this study were found, and the technical-administrative body, in view of this, were excluded from these actions.

It is therefore a target audience necessary for the proper institutional functioning and, consequently, for science and the general population. In this sense, the technical-administrative personnel of academic institutions should be included in studies that evaluate chronic conditions, such as asthma, regardless of the previous diagnosis[12].

The objective of this study was to estimate the level of knowledge about asthma of technical-administrative workers of a graduate and postgraduate nursing course of a public university in Salvador, Bahia.

Method

This is a cross-sectional study that is part of a matrix project entitled: Diagnosis, under diagnosis and knowledge about asthma in a public university community in Salvador-Bahia. The research was conducted at a Nursing School of a public university in Salvador, Bahia. The study population was composed of 25 technical-administrative workers that are divided into several sectors of the university unit.

The convenience sample was collected from January to May 2021. Thus, the participants were 18 technical-administrative workers who met the inclusion criteria: work in the Nursing School of a public university in Salvador, aged 18 years or more, both sexes and who agreed to participate in the research. The exclusion criterion was to stop completing one of the questionnaires.

Data collection was conducted remotely, using the Google Forms platform, through three forms: a questionnaire with 38 questions to obtain sociodemographic data, clinical history, family history and report of asthma diagnosis; a questionnaire based on the criteria of the Global Initiative for Asthma (GINA), adapted from the teleasthma project of the research group ATIVAR, to identify the signs and symptoms suggestive of asthma in the sample through the questions Have you ever had wheezing? and In the last 12 months you had wheezing? ; and a questionnaire validated[14] and adapted by the authors, with 36 questions, to assess knowledge about asthma.

For knowledge evaluation, the questions[15] were grouped in the form of domains for better understanding of the most known or unknown themes by the study sample, namely: DOM1 – Concept (4 questions); DOM2 – Myths (6 questions); DOM3 – Pathophysiology (4 questions); DOM4 – Treatment (7 questions); DOM5 – Triggering factors (11 questions); and DOM6 – Asthma management (4 questions).

The study variables refer to sociodemographic aspects (sex, age, self-reported skin color, schooling); clinical history (family history of asthma, wheezing in the last year, report of asthma diagnosis and symptoms suggestive of the disease); overall and domain knowledge about asthma.

After the authorization of the direction of the Nursing School of the University Unit, a virtual meeting was held with all study participants and the links to the e-mail of each worker were sent, after prior authorization. The purpose of the meeting was to guide the research objectives and

explain the adaptations to the virtual environment due to the pandemic. After the virtual meeting, a personalized e-mail containing links to the questionnaires and the Informed Consent Form (ICF) was sent to the e-mail of each technical-administrative worker to be answered on the Google Forms platform. These forms could be accessed through the use of a computer, tablet or mobile phone. After the acceptance of the participant in the ICF, data were collected.

During the period of data collection, messages were sent by the WhatsApp application and by e-mail in order to: inform about the deadlines to answer the questionnaires; emphasize the importance of answering the survey; thank the participation in the study; inform about questionnaires not fully completed or not completed; inform about the possibility of guidance with the researchers, clarify possible doubts during the completion of the questionnaires. The messages were customized and sent according to the demand of each worker.

All data collected from the three questionnaires were fed into a database built using the IBM SPSS Statistics 28.0 statistical software. For data analysis, descriptive statistics were adopted. For categorical variables, the simple frequencies and their percentages were considered and, for the numerical variables, the measures of central tendency and dispersion (mean, median, standard deviation, 25-75 percentiles, minimum and maximum) were adopted.

For the evaluation of knowledge about asthma, measures of central tendency and dispersion were adopted, expressed in the form of average correct answers, both in the overall score and by domain. In addition, the cut-off point of 25 correct answers was adopted, and two categories were selected, satisfactory (>25 correct answers) and unsatisfactory (<25 correct answers)[16].

To analyze the association between sociodemographic and clinical variables (sex, self-reported skin color, schooling, family history of asthma, wheezing in the last year) and the level of knowledge about asthma, the Chi-square and Fisher's exact tests were used, considering the level of statistical significance of 5% in all analyses and 95% confidence interval (CI).

Following the ethical assumptions, the research project was submitted to the Research Ethics Committee of the Nursing School of the Federal University of Bahia in order to meet the requirements of Resolution n. 466/12, of the Ministry of Health, for all works involving human beings. The project was approved in November 2017 with Consubstantiated opinion n. 2,371,777 and amendment submitted and approved under Opinion 3,005,478, due to the pandemic.

Given the guidance of the National Research Ethics Commission (CONEP), dated June 5, 2020, which brings instructions for research carried out during the pandemic period, the study participants that accepted to participate in the research, in addition to the signature of the virtual document, were requested to save a copy of the ICF.

Results

The study included 18 technical-administrative workers, 14 (77.8%) female, with a mean age of 42.11±10.9 years. As for self-reported race/color, 8 workers (44.4%) reported having black skin color and 12 (66.7%) reported being from Salvador. Regarding the level of education of the sample studied, 16 (88.9%) had completed higher education (Table 1).

Table 1 – Socioeconomic characteristics of technical-administrative workers at a Public University. Salvador, Bahia, Brazil – 2021. N=18 (continued)

Socioeconomic characterization	n (%)
Biological sex	
Female	14 (77.8%)
Male	4 (22.2%)

Table 1 – Socioeconomic characteristics of technical-administrative workers at a Public University. Salvador, Bahia, Brazil – 2021. N=18 (conclusion)

Socioeconomic characterization	n (%)
Age (X ± SD)	42.11 ± 10.98
Skin color (self-reported)	
Brown	5 (27.8%)
Black	8 (44.4%)
White	5 (27.8%)
Schooling	
Complete High School	2 (11.1%)
Complete Higher Education	16 (88.9%)
Clinical History	
Asthma	2 (11.1%)
Rhinitis	6 (33.3%)
Systemic Arterial Hypertension (SAH)	4 (22.2%)
Gastroesophageal reflux disease (GERD)	5 (27.8%)
Obesity	2 (11.1%)
Symptoms suggestive of asthma	
Wheezing	
Once in the lifetime	6 (33.3%)
In the last year	2 (11.1%)
Shortness of breathe	
Once in the lifetime	7 (38.9%)
In the last year	5 (27.8%)

Source: created by the authors.

In the analysis of overall knowledge about asthma, 55.6% (n=10) of the study sample had unsatisfactory knowledge about asthma (X±SD=22.6±7.5 correct answers) in the analysis by the average of correct answers. The concept of asthma (DOM 1) was the domain best known by the participants (X±SD=3.11±0.83 correct answers) and the treatment (DOM 4) was the most unknown theme by the study sample, with the lowest average of correct answers among the participants (X±SD=2.77±1.73 correct answers). These data are presented in Table 2.

Among the domains evaluated, the concept of asthma was the theme best known by the participants. In this field, questions about the chronicity of the disease, its inflammatory character and its classification as a non-communicable disease were addressed. The issues *a person can get asthma from another person and asthma can kill* were responsible for 94.4% of correct answers each, raising the average of the domain.

The treatment was the most unknown theme by the study sample, with the lowest average of correct answers among the participants (X±SD=2.77±1.73 correct answers). In this domain, questions about the maintenance treatment for disease control and symptom relief were addressed. *Bronchodilators, for example, formoterol, are the best drugs to control asthma* and only 11% know how to answer about the fact *that syrups, tablets and injections cause more side effects than salbutamol*.

In the domain of myths (X±SD 3.11±0.83 correct answers), the question If you use asthma drugs for a long time they lose the effect had the lowest rate of correct answers of the domain and only 16.7% of participants answered this question correctly. In contrast, the question Sympathetic treatment works for asthma obtained a high rate of correct answers, with 83.3% of correct answers (Table 2).

Table 2 – Overall and domain knowledge about asthma among technical-administrative workers at a Public University. Salvador, Bahia, Brazil – 2021. N=18

Variables	Global correct answer score	
	X ± SD	Percentile [25-75]
Overall knowledge	22.61 ± 7.53	[18-28]
Domain 1 – Concept (4 questions)	3.11±0.83	[3-4]
Domain 2 – Myths (6 questions)	3.5 ± 1.85	[1.75-5.0]
Domain 3 – Pathophysiology (4 questions)	2.55 ± 1.19	[2-4]
Domain 4 – Treatment (7 questions)	2.77 ±1.73	[1-4.25]
Domain 5 – Triggering factor (11 questions)	8.22 ± 2.81	[6-10]
Domain 6 – Management (4 questions)	2.44 ±1.33	[1.75-4.0]

Source: created by the authors.

Regarding clinical and sociodemographic factors associated with knowledge about asthma, no statistically significant associations were found between satisfactory/unsatisfactory knowledge about asthma and family history clinical variables of asthma (P=0.618) and wheezing in the last year (P=0.500), as well as with the level of schooling (P=0.183). The analysis of association with previous asthma was not possible to be calculated, given the number of reports (n = 2).

Discussion

The findings of this study showed a higher prevalence of females in the technical-administrative staff of the school, considering that 14 (77.8%) participants in this study were women. These data show higher proportions than those found in a national survey, which found that 59% of all public workers are women[17].

In this research, the average age of the participants was 42.11±10.98 years. According to another national study, it is important to delimit the age group of the studied community in order to identify changes pertinent to the identified stage[18]. This age range is also one of the indicators to answer the instrument used in this study.

Analyzing the self-reported skin color variable, the data found are in line with national data, since it has a sample of 72.2% of self-declared black servers. Corroborating these data, a population analysis shows that, in 2019, about 80% of the population of Bahia self-declared as black[19].

In the present study, the level of education found showed that most participants, 16 (88.9%), have completed higher education. Health education is an essential part of good management of chronic diseases and the level of education can interfere with the understanding of the disease and its processes[10]. Studies conducted with mothers of asthmatic children found that mothers who had little schooling had more difficulty with the management of the disease, because they had difficulty interpreting prescriptions and recognizing symptoms[20].

In the analysis of knowledge about asthma, 55.6% (n=10) of the sample had unsatisfactory knowledge about asthma. A study conducted in an asthma reference center in Rio Grande do Sul, Brazil, identified that only 3.8% of parents of children with asthma had satisfactory knowledge about the disease[21]. A quasi-experimental study conducted in Egypt identified that 69% of the patients evaluated had unsatisfactory knowledge about asthma[22]. The low level of knowledge in asthma can induce the individual to a bad management of the disease, culminating in ineffective control, exacerbations and inefficient behavior in the face of respiratory crises[10].

The concept of asthma, with four questions, was the domain best known by the participants (X±SD=3.11±7.53 hits). The data found in this study differ from the data found in a survey on knowledge of asthma among adolescents, in which the concept was the most unknown topic among students[16].

The treatment domain, with 7 questions, was the theme most unknown by the sample of this study, with the lowest average of correct answers among the participants (X±SD=2.77±1.73 correct answers). Numerous individuals with asthma still believe that there is no need for treatment for the pathology and minimize its importance[1].

Adequate knowledge of the therapeutic resources used in the management of asthma is fundamental for its control, being able to lead to greater adherence to treatment, reflecting positively on the quality of life of people affected by asthma and their families[9,21]. In addition, knowing the treatment, regardless of the previous diagnosis, can help in the control of exacerbations among peers, avoiding early and unacceptable deaths[7,9].

The domain that questioned the myths related to asthma, with 6 questions and average accuracy among the participants of 3.5±1.85 [1.75-5.0], also attracted attention in this study. A survey conducted in southern Brazil states that a significant portion of individuals with asthma believe popular myths, fear that the medication may cause harm to the body and still claim not to follow treatment because they doubt the severity of the disease[10].

Still concerning the domain of popular myths and asthma, a survey conducted with adolescents from a public school in Bahia found that belief in popular myths can negatively interfere with knowledge in asthma, leading people to disbelieve that they have the disease[18]. Adequate knowledge about asthma may help in the identification of suggestive cases and help in cases of asthma exacerbations in correlated persons[18].

One of the limitations of the study concerns the sample size. However, it is known that there is a lack of studies on asthma in university communities, including nonasthmatic ones, being this the first with technical-administrative workers according to search.

This study brings contributions to the practice, as it manages to talk about asthma in different circles of relatives and responsible for asthmatic people, showing the importance of knowledge about a chronic disease that has many underdiagnoses. We have addressed the importance of health empowerment, in which the individual well informed about their health can make the best decisions.

Conclusion

The present study identified that the level of knowledge about asthma of technical-administrative workers is unsatisfactory in the majority of the investigated sample. Thus, it is recommended to develop health education actions related to asthma for this population, in order to remedy misconceptions and demystify issues of extreme importance that may interfere with the well-being and quality of life of this community. Adequate knowledge about asthma can help better choices, favoring empowerment in the individual's health.

Collaborations:

1 – conception and planning of the project: Ana Carla Carvalho Coelho and Carolina de Souza-Machado;

2 – analysis and interpretation of data: Ana Paula Rocha Mendes da Cruz, Deyse Mocelin, Ana Carla Carvalho Coelho, Carolina de Souza-Machado;

3 – writing and/or critical review: Ana Paula Rocha Mendes da Cruz, Deyse Mocelin, Bianca de Matos Magalhães, Ana Carla Carvalho Coelho and Carolina de Souza-Machado;

4 – approval of the final version: Ana Paula Rocha Mendes da Cruz, Deyse Mocelin, Bianca de Matos Magalhães, Ana Carla Carvalho Coelho and Carolina de Souza-Machado.

Competing interests

There are no competing interests.

Funding sources

Institutional Program of Scientific Initiation of the *Universidade Federal da Bahia* (PIBIC/UFBA).

References

1. Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention [Internet]. Fontana (US); 2021 [cited 2021 Nov 24]. Available from:https://ginasthma.org/wp-content/uploads/2021/05/GINA-Main-Report-2021-V2-WMS.pdf
2. Pizzichini MMM, Carvalho-Pinto RM, Cançado JED, Rubin AS, Cerci Neto A, Cardoso AP, et al. Recomendações para o manejo da asma da Sociedade Brasileira de Pneumologia e Tisiologia - 2020. J bras pneumol. 2020;46(1):e20190307. DOI: https://doi.org/10.1590/1806-3713/e20190307
3. Fundação ProAR. Uso excessivo de SABA – como identificar [Internet]. Salvador; 2021 [cited 2021 Dec 08]. Available from: https://www.fundacaoproar.org.br/noticia?post=uso-excessivo-de-saba-como-identificar
4. Al-Zalabani AH, Almotairy MM. Asthma control and its association with knowledge of caregivers among children with asthma. A cross-sectional study. Saudi Med J. 2020;41(7):733-9. DOI: https://doi.org/10.15537/smj.2020.7.25167
5. Global Asthma Network. The Global Asthma Report 2018 [Internet]. Auckland (NZ); 2018 [cited 2021 Nov 28]. Available from: http://globalasthmareport.org/
6. World Health Organization. Asthma: Key Facts [Internet]. Geneva (CH); 2021 [cited 2021 Nov 24]. Available from: https://www.who.int/news-room/fact-sheets/detail/asthma
7. Pitchon RR, Alvim CG, Andrade CR, Lasmar LMBF, Cruz AA, Reis AP. Mortalidade por asma em crianças e adolescentes: uma causa de morte quase sempre evitável. Rev Med Minas Gerais. 2018;28(Suppl 6):eS280607. DOI: https://dx.doi.org/10.5935/2238-3182.20180099
8. Aaron SD, Boulet LP, Reddel HK, Gershon AS. Underdiagnosis and Overdiagnosis of Asthma. A J Respir Crit Care Med. 2018;198(8):1012-20. DOI: 10.1164/rccm.201804-0682CI
9. Cançado JED, Penha M, Gupta S, Li VW, Julian GS, Moreira ES. Respira project: Humanistic and economic burden of asthma in Brazil. J Asthma. 2018;56(3):244-51. DOI: 10.1080/02770903.2018.1445267
10. Banhos CCD, Roncada C, Pinto LA, Pitrez PM. Avaliação do conhecimento teórico e prático sobre asma em responsáveis por crianças atendidas na atenção primária. J Bras Pneumol. 2020;46(1):e20190147. DOI: http://dx.doi.org/10.1590/1806-3713/e20190147
11. Talaat E, Mahrous FM, Abdelsalam SN, Elsadee MO. Effect of educational programme on patients with bronchial asthma regarding self -care management. J Pak Med Assoc. 2023;73(Suppl 4):S233-7. DOI: http://dx.doi.org/10.47391/jpma.egy-s4-46
12. Roncada C, Cardoso TA, Bugança BM, Bischoff LC, Soldera K, Pitrez PM. Níveis de conhecimento em asma de pais de crianças asmáticas. Einstein. 2018;16(2):eAO4204. DOI: 10.1590/S1679-45082018AO4204
13. Faria RMO, Leite ICG, Silva GA. O sentido da relação trabalho e saúde para os assistentes em administração de uma universidade pública federal no Estado de Minas Gerais**.** Physis. 2017;27(3):541-59. DOI: https://doi.org/10.1590/S0103-73312017000300009
14. Aragaki C. Universidade pública tem papel social, intelectual e econômico. Jornal da USP no Ar **(**São Paulo). 2019 mai 10 [cited 2021 Nov 18]. Available from: https://jornal.usp.br/atualidades/universidade-publica-tem-papel-social-intelectual-e-economico/
15. Freire MCM, Pattussi MP. Tipos de estudos. In: Estrela C, organizador. Metodologia científica. Ciência, ensino e pesquisa. 3. ed. Porto Alegre: Artes Médicas; 2018. p. 109-28 [cited 2021 Nov 18]. Available from: https://books.google.com.br/books?hl=pt-BR&lr=&id=67VIDwAAQBAJ&oi=fnd&pg=PR1&dq=FREIRE+%26+PATTUSSI,+2018&ots=87UI2Odrm6&sig=5Hh83hZ8YX0SDg7qg3uLzlieN4U#v=onepage&q&f=false
16. Borges MC, Ferraz E, Pontes SMR, Cetlin ACVA, Caldeira RD, Silva CS, et al. Development and validation of an asthma knowledge questionnaire for use in Brazil. J bras pneumol. 2010;36(1):8-13. DOI: https://doi.org/10.1590/S1806-37132010000100004

17. Coelho ACC, Souza-Machado C, Oliveira TS, Santos TNN, Cruz ÁA; Souza-Machado A. Curricular intervention increases adolescents' knowledge about asthma: a randomized trial. J Pediatr (Rio J). 2018;94(3):325-34 DOI: https://doi.org/10.1016/j.jped.2017.06.014

18. Escola Nacional de Administração Pública. Mulheres ocupam poucos cargos de comando no setor público [Internet]. Salvador; 2020 [cited 2021 Oct 22. Available from: https://www.enap.gov.br/pt/acontece/noticias/mulheres-ocupam-poucos-cargos-de-comando-no-setor-publico.

19. Santos Junior AG, Pedro JO, Oliveira MC, Furlan MCR, Nascimento FG, Bassler TC, et al. Caracterização sociodemográfica e a autopercepção das condições de saúde de idosos. Rev enferm UFPE on line [Internet]. 2018 [cited 2021 Oct 22];12(3)692-700. Available from: https://pesquisa.bvsalud.org/portal/resource/pt/biblio-967134

20. Instituto Brasileiro de Geografia e Estatística. Conheça o Brasil: População Cor ou raça [Internet]. Rio de Janeiro; 2020 [cited 2021 Nov 18]. Available from: https://educa.ibge.gov.br/jovens/conheca-o-brasil/populacao/18319-cor-ou-raca.html

21. Costa RS, Zanolli ML, Nogueira LT. Vivência materna no cuidado da criança com asma. Rev Enferm UERJ [Internet]. 2018 [cited 2021 Oct 22];26:e16983. Available from: https://www.e-publicacoes.uerj.br/enfermagemuerj/article/view/16983

22. Cardoso TA, Ribeiro MC, Roncada C, Pitrez PMC. Avaliação dos níveis de alfabetismo em saúde, conhecimento em asma e qualidade de vida de pais associados ao controle da doença em crianças e adolescentes com diagnóstico de asma de centros especializados. Sci med [Internet]. 2021 [cited 2021 Oct 22];31(1):38767. Available from: https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1254857

Received: December 30, 2022

Approved: October 22, 2023

Published: November 29, 2023