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A SURVEY ON INDOOR, FOOD AND PSYCHOLOGICAL FACTORS THAT TRIGGERS TAMAKA SHVASA (CHILDHOOD ASTHMA) IN CHILDREN AGED BETWEEN 5-15 YEARS

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ABSTRACT:

Background: Tamaka shvasa is a chronic disorder of pranavaha srotas (respiratory system) that is comparable with asthma. Asthma is an episodic disease manifested clinically by paroxysms of dyspnoea, cough and wheezing. Most of them acutely manifest following exposure to various indoor, food, psychological and occupational factors. This cross-sectional survey was aimed to identify common indoor, food, psychological triggering factors for tamaka shvasa (childhood asthma) in children aged between 5-15 years. **Materials and Methods**: 50 Children suffering with tamaka shvasa (childhood Asthma) consulting outpatient department and inpatient department of SDMIA hospital were interrogated for triggering factors of tamaka shvasa using structured questionnaire based on asthma trigger inventory (ATI). **Results**: Categorical screening was done on various triggering factors of tamaka shvasa(childhood asthma) like indoor (15), food (10), initial symptoms (5) and psychological (5). Amongst indoor factors dusting/vacuum cleaning and dust mites were the strongest triggers. Ice cream and cold juices in food were strongest triggering factors. Cold and cough were the common initial features prior to the asthma. Psychological factors like anxiety, crying and laughing hard elicited acute asthma manifestation. **Discussion**: Primary factor that leads to recurrent and acute exacerbation of asthma could be because of the innate anatomical and immunological peculiarities in children. Further, familial traits, atopic disorders, housing and living standards contributes to the condition. Though various factors are identified, their mechanism and causal relationship with asthma needs to be explored in future studies with large population.

Keywords: Ayurveda, childhood asthma, indoor triggering factors, psychological factor, tamaka shvasa

INTRODUCTION

Tamaka shvasa is a chronic illness of pranavaha srotas comparable to asthma.[1]Owing to the kapha avastha and innate, physiological and immunological peculiarities diseases of respiratory system are more frequently seen in children. Prevalence of childhood asthma is 2.74 in Indian children indicating significant burden. [2]

Role of indoor, food and psychological factors in triggering asthma and respiratory symptoms have already been documented. Important indoor pollutants that sensitize for asthma are cigarette smoke, [3] air pollutants, [4] and allergen. [5,6,7] Common household allergen includes those derived from dust mites, rodents, cockroaches and pet dander have shown strong association with asthma. [8,9,10,11,12,13,14]In addition to these tobacco smokes, nitrogen oxide from combustion devices, irritants from volatile organic compounds and fungi also have been documented. [15,16] Amongst the housing conditions and living standard, substandard housing such as excessive moisture, dampness, poor heating system and ventilation, overcrowding, pest infestations, structural defects and deteriorating carpeting are have already been studied. [17,18,19]

Common food articles that trigger allergy and asthma are milk, egg, wheat, soy, pea nuts and fish. Typically, they do have increased IgE levels. [20] Several parents also report precipitation of asthma up on intake of cold beverages, ice creams and deep-fried food articles. Psychological disturbances like stress, emotional burst outs, depression and anxiety do contribute to the asthma triggers and increased rate of visits at casualties. [21,22,23]

More over seasonal viral infections have implicated with more than 80% of acute asthma exacerbations.[24]

Multiple researches have been published in this field. However, studies specially emphasizing on the indoor, food and psychological factors that trigger tamaka shvasa (childhood asthma) in Indian context are very fewer. This study was undertaken to identify the impact of indoor, food and psychological factors that trigger asthma in children with tamaka shvasa (childhood asthma).

MATERIALS AND METHODS:

A cross sectional survey was done on 50 children suffering with tamaka shvasa (childhood asthma) visiting outpatient department and inpatient department of SDMIA hospital, Bengaluru were interrogated for triggering factors of tamaka shvasa using structured case format questionnaire based on Asthma Trigger inventory (ATI).[25]For the purpose of this study the triggers were grouped in to indoor, outdoor, food, exposure, climate, diurnal and psychological factors and consisted of 50 identified triggers. Attempt was also done to note the most common initial symptom with each exacerbation that included cold, head ache, cough, shortness of breath and fever. Psychological factors identified were stress, anxiety, crying, anger and laughing hard. This structured questionnaire was based on Asthma trigger inventory. It is a valid and reliable questionnaire that identifies 32 triggering factors for asthma that are organized into six subsets namely, exercise, animal allergens, psychological, pollen allergens, infections, and irritants.

Children aged between 5- 15 years of either gender with c/o tamaka shvasa (childhood asthma) were included for the study under the parental assent and consent. Those who were un-willing to participate were excluded from the study.

Methodology:

All the children with tamaka shvasa aged between 5-15 years were directly interrogated along with the parents to note the detailed history regarding child's illness and identified triggering factors associated with recurrent exacerbations. The data obtained were tabulated and analysed using SPSS Version 20 and the results are summarised below.

RESULT:

The observations and the results are presented below.

Amongst 50 children participated in study, majority were male (72%) as compared to female (28%). Hindu's predominated in the study (98%). A fairly equal distribution was seen in the socio-economic distribution of the children. (Figure 1) 42% children had family history of asthma, 24% had history of atopic asthma/ skin disease, while 8% had history of

skin disease. Majority of 46% of children mostly presented with cold as initial feature while 34% with cough. (Figure 1)

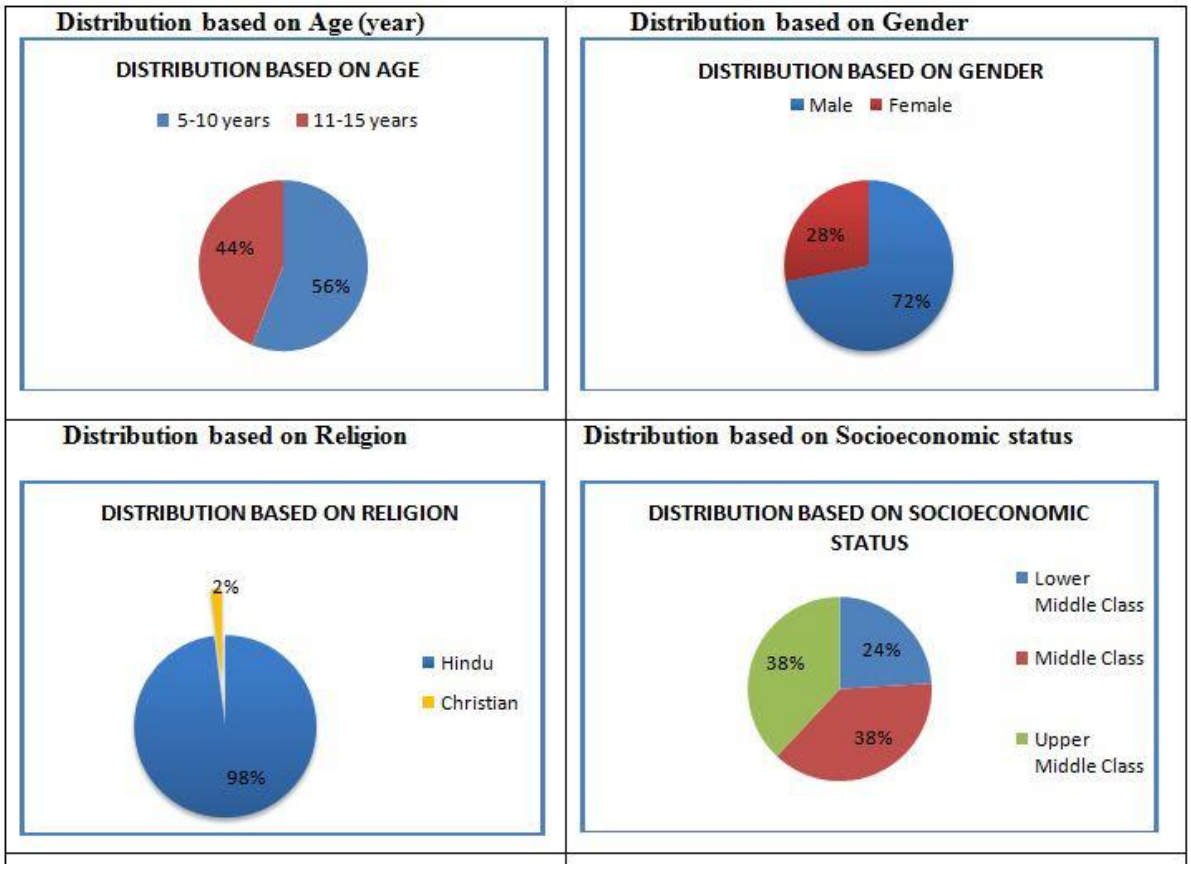

Figure1: Distribution of children based on age, gender, religion and socio economic status

15 most common indoor allergens that can trigger asthma were screened amongst 50 children. The most frequent and distressing allergen identified was dust during dusting and vaccum cleaning in 35 (70%) children, dust mites in 34 (68%) followed by strong odours in 18 (36%) children. Least among the triggers were dark closed room in 2 (4%) children followed by paint smell in 5 (10%) children. No children reported sensitivity to cockroach. Few percentages of children reported sensitivity to air conditioning and sambrani/agarbatti fume (34% each), cooking seasoning and mosquito repellents (24% each), exhaust fumes (28%), perfume and hair spray (18%) and fur of teddy bear and pet animals (12% each). (Figure 2)

Food was one of the significant triggerer in the sample of 50 children study. Highest sensitivity was with intake of ice-cream in 37 (74%) children. Triggers next in order were with consumption of cold juices (68%), curd (58%), pastry (52%), grapes (46%), citrus fruits (44%), chocolate (42%), fried items (38%) and milk (26%). Amongst 50 subjects, laughing hard triggered asthma episode in 19 (38%) children. Other psychological triggers for asthma identified were crying (22%), anger (16%), anxiety (12%), and stress (10%). (Figure 2)

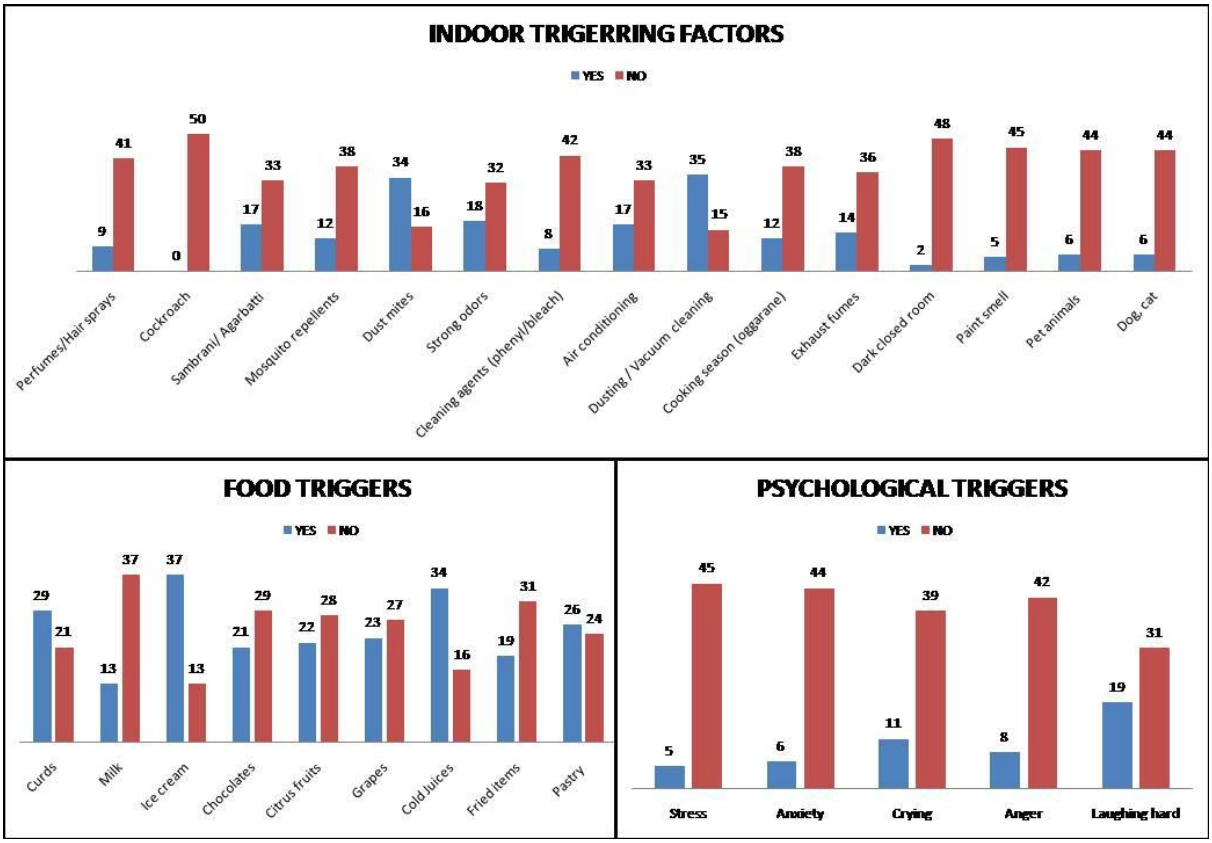

Figure 2: Comparative results on indoor, food and psychological triggers of asthma

DISCUSSION:

Discussion on indoor triggering factors:

The indoor triggers surveyed in the study in the order of severity indicate most common household exposures that can exacerbate episodes of asthma. These when clubbed with environmental changes can be more dangerous. Further, the living housing standards of the children, crowding and structural defects provokes the triggers to be

harmful for children. Exposure to excessive cold, sitting in damp and cold areas, household smoke, soot and excessive dryness, overstraining, withholding natural urges, excess fasting and poor nutritional status supposed to vitiate vata and kapha blocking the srotas resulting in manifestation of tamaka shvasa.[26]

Discussion on Food triggering factor:

Association of food allergy and atopy have been demonstrated in various epidemiological studies on asthma.[27]This one-point study also elicits strong relation of food with acute asthma manifestation. This in fact could be understood better on the principle of origin of disease as tamaka shvasa has its origin from amashaya. Further food is the main factor to altering (digestive fire). The food triggers identified in the study hampers agni because of their nature like atisheeta (excessive cold), atiguru (heavy to digest), atikleda(stickyness) and atisnigda (excess oily). Reduced digestive capacity results in formation of ama (morbid metabolic waste) that inturn blocks the downward movement of vayu. As a result, vayu gets vitiated, moves upwards to the seat of kapha (uras) mixes with the sthanika dosha and leads to blockage in pranavaha srotas and hence manifestation of tamaka shvasa.[28]

Discussion on psychological triggering factors:

Association of psychological factors like stress, anxiety, crying, anger and excessive laughing in acute exacerbation of asthma have already been discussed in various publications. [29]Their role is proposed to be through the modulation of neuro, immuno and hormonal mechanisms and increasing the airway obstruction. Tamaka shvasa especially if it is santamaka variety gets exacerbated whenever the person gets into tamoguna (psychological disturbances) and also exposure to darkness. [30]In such situation, there is vitiation of vata and kapha owing to reduced satva. However, this cross-sectional survey doesn't explain the mechanism and magnitude of their action on tamaka shvasa.

CONCLUSION:

50 children with tamaka shvasa (childhood Asthma) were surveyed for common indoor, food and psychological factors that trigger tamaka shvasa (acute asthma exacerbation). The most common and distressing factors were identified. These factors

when combined or in association with health morbidities like malnutrition, anaemia, weakness, genetic influences could be more severe. The information thus obtained can serve as a baseline data for further studies on tamaka shvasa (childhood Asthma). However, this study does not explain the mechanism of involvement of triggers in deciding the severity of the condition.

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REFERENCE

1. Chakrapani. Charaka Samhita of Charaka with Ayurveda Dipika commentary Chikitsasthana 17/55-60. Delhi: Rastriya Sanskrit Sansthana, 2006; 533-535
2. Pal R, Ghosh A, Kumar R, Galwankar S, Paul SK. S Pal S. Public health crisis of road traffic accidents in India: Risk factor assessment and recommendations on prevention on the behalf of the Academy of Family Physicians of India. J Family Med Prim Care. 2019;8(3):774-83.
3. HERSOUG LG, Husemoen LL, Sigsgaard T, Madsen F, Linneberg A. Indoor exposure to environmental cigarette smoke, but not other inhaled particulates associate with respiratory symptoms and diminished lung function in adults. Respirology. 2010 Aug;15(6):993-1000.
4. Trupin L, Balmes JR, Chen H, Eisner MD, Hammond SK, Katz PP, Lurmann F, Quinlan PJ, Thorne PS, Yelin EH, Blanc PD. An integrated model of environmental factors in adult asthma lung function and disease severity: a cross-sectional study. Environmental Health. 2010 Dec;9(1):1-4.
5. Dottorini ML, Bruni B, Peccini F, Bottini P, Pini L, Donato F, Casucci G, Tantucci C. Skin prick-test reactivity to aeroallergens and allergic symptoms in an urban

population of central Italy: a longitudinal study. Clinical & Experimental Allergy. 2007 Feb;37(2):188-96.

6. Lai CK, Beasley R, Crane J, Foliaki S, Shah J, Weiland S, ISAAC Phase Three Study Group. Global variation in the prevalence and severity of asthma symptoms: phase three of the International Study of Asthma and Allergies in Childhood (ISAAC). Thorax. 2009 Jun 1;64(6):476-83.
7. Breysse PN, Diette GB, Matsui EC, Butz AM, Hansel NN, McCormack MC. Indoor air pollution and asthma in children. Proceedings of the American Thoracic Society. 2010 May 1;7(2):102-6.
8. Committee on the assessment of asthma and indoor air (États-Unis). Clearing the air: Asthma and indoor air exposures. National Academy Press; 2000.
9. Spaces ID. Health Committee on Damp Indoor Spaces and Health. Institute of Medicine. 2004.
10. Sporik R, Squillace SP, Ingram JM, Rakes G, Honsinger RW, Platts-Mills TA. Mite, cat, and cockroach exposure, allergen sensitisation, and asthma in children: a case-control study of three schools. Thorax. 1999 Aug 1;54(8):675-80.
11. Rosenstreich DL, Eggleston P, Kattan M, Baker D, Slavin RG, Gergen P, Mitchell H, McNiff-Mortimer K, Lynn H, Ownby D, Malveaux F. The role of cockroach allergy and exposure to cockroach allergen in causing morbidity among inner-city children with asthma. New England Journal of Medicine. 1997 May 8;336(19):1356-63.
12. Zock JP, Jarvis D, Luczynska C, Sunyer J, Burney P, European Community Respiratory Health Survey. Housing characteristics, reported mold exposure, and asthma in the European Community Respiratory Health Survey. Journal of Allergy and Clinical Immunology. 2002 Aug 1;110(2):285-92.
13. Phipatanakul W. Rodent allergens. Current allergy and asthma reports. 2002 Sep;2(5):412-6.

14. Salo PM, Jaramillo R, Cohn RD, London SJ, Zeldin DC. Exposure to mouse allergen in US homes associated with asthma symptoms. Environmental health perspectives. 2009 Mar;117(3):387-91.

15. US. Department of Health and Human Services. The health consequences of involuntary Exposure to Tobacco smoke. A Report of the Surgeon General.

16. Hansel NN, Breysse PN, McCormack MC, Matsui EC, Curtin-Brosnan J, Williams DA, Moore JL, Cuhran JL, Diette GB. A longitudinal study of indoor nitrogen dioxide levels and respiratory symptoms in inner-city children with asthma. Environmental health perspectives. 2008 Oct;116(10):1428-32.

17. Huss K, Rand CS, Butz AM, Eggleston PA, Murigande C, Thompson LC, Schneider S, Weeks K, Malveaux FJ. Home environmental risk factors in urban minority asthmatic children. Annals of allergy. 1994 Feb 1;72(2):173-7.

18. Kitch BT, Chew G, Burge HA, Muilenberg ML, Weiss ST, Platts-Mills TA, O'Connor G, Gold DR. Socioeconomic predictors of high allergen levels in homes in the greater Boston area. Environmental Health Perspectives. 2000 Apr;108(4):301-7.

19. Krieger J, Higgins DL. Housing and health: time again for public health action. Am J Public Health. 2002 May;92(5):758-68. doi: 10.2105/ajph.92.5.758. PMID: 11988443; PMCID: PMC1447157.

20. Wang J, Visness CM, Sampson HA. Food allergen sensitization in inner-city children with asthma. Journal of allergy and clinical immunology. 2005 May 1;115(5):1076-80.

21. Ritz T, Wittchen HU, Klotsche J, Mühlig S, Riedel O. Asthma trigger reports are associated with low quality of life, exacerbations, and emergency treatments. Annals of the American Thoracic Society. 2016 Feb;13(2):204-11.

22. Daniel LC, Boergers J, Kopel SJ, Koinis-Mitchell D. Missed sleep and asthma morbidity in urban children. Annals of Allergy, Asthma & Immunology. 2012 Jul 1;109(1):41-6.

23. Malhi P. Psychosocial issues in the management and treatment of children and adolescents with asthma. Indian Journal of Pediatrics. 2001 Sep 1;68: S48-52.

24. Busse WW, Lemanske Jr RF, Gern JE. Role of viral respiratory infections in asthma and asthma exacerbations. The Lancet. 2010 Sep 4;376(9743):826-34.

25. Ritz T, Steptoe A, Bobb C, Harris AH, Edwards M. The asthma trigger inventory: validation of a questionnaire for perceived triggers of asthma. Psychosomatic Medicine. 2006 Nov 1;68(6):956-65.

26. Susrutha.Sushruta Samhita with DalhanaNibandhaSangraha commentary by Vaidya jadavjiTrikamji Acharya, Uttara tantra, Hikkapratishedaadhyaya, 50/3-5. reprint edition. chaukhambhaorientalia, Varanasi, India; 2009.

27. Foong RX, du Toit G, Fox AT. Asthma, food allergy, and how they relate to each other. Frontiers in pediatrics. 2017 May 9; 5:89.

28. Susrutha, Sushruta Samhita, DalhanaNibandhaSangraha commentary by Vaidya jadavjiTrikamji Acharya, uttarasthana, shvasapratishedaadhyaya, 51/4. reprint edition. chaukhambhaorientalia, Varanasi, India; 2009.

29. Van Lieshout RJ, MacQueen G. Psychological factors in asthma. Allergy, Asthma & Clinical Immunology. 2008 Mar;4(1):1-7.

30. Charaka, charaka Samhita with chakrapani commentary by Vaidya Yadavji Trikamji acharya, Chikitsa sthana, hikkashvasa Chikitsa adhyaya, 17/63-64. Reprint edition. Chaukhambha Surbharti Prakashan, Varanasi, India; 2011. pp 535.