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Knowledge on Self-care Management among Asthma Patients in Public Hospital at 250 Bedded Mohammad Ali Hospital, Bogura, Bangladesh

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ABSTRACT
Background: *Asthma is one of the most common major non-communicable diseases[9]. Asthma is a global problem today that can attach children and adults with high morbidity rates and cause mortality in severe cases[3]. Around 300 million people have asthma worldwide it is likely that by 2025 a further100 million may be affected. There is a large geographical variation in asthma prevalence, severity, and mortality. While asthma prevalence is higher in high income countries, most asthma-related mortality occurs in low-middle income countries[5].* ***Objective:*** *The aimed was to assess the level of Knowledge on Self-care Management among Asthma Patients in Public Hospital at 250 Bedded Mohammad Ali Hospital, Bogura, Bangladesh.* ***Methodology:*** *The descriptive type of cross-sectional study design was used and sample size 100 that was convenient sampling technique followed those who meet the inclusion criteria and to assess the level of knowledge on self-care management among asthma patient. The study was conducted from July, 2024 to April, 2025. The instruments for data collection were a structured questionnaire which composed of two parts: Demographic variables and knowledge-based information on self-care management of asthma patients.* ***Results:*** *The findings of the current study reported that theknowledge score 58.6% which indicate the moderate knowledge on self-care management of asthma Patients. Over all findings of the study showed that, most of respondents' knowledge level had poor 62%, 18% had average knowledge, 10% had good knowledge, 04% had very good knowledge and 06% had excellent knowledge regarding asthma.* ***Conclusion:****Asthma stills a significant burden due to lack of self-care management and also rising public challenge with its increasing prevalence. Despite the revolutionary changes in asthma management the morbidity and mortality due to asthma is increasing worldwide. In this context, this study suggested that the need of awareness program or health education program about self-care management of asthma is expected to improve public knowledge.*
Keywords: *Asthma, Knowledge, Management.*

I. INTRODUCTION

Asthma is one of the most common major non-communicable diseases [1]. Asthma is a global problem today that can attach children and adults with high morbidity rates and cause mortality in severe cases [2]. The air passages in the lungs become narrow due to inflammation and tightening of the muscles around the small airways with symptoms are cough, wheeze, shortness of breath and chest tightness also triggers vary from person to person, but it can include viral infections (colds), dust, smoke, fumes, changes in the weather, grass and tree pollen, animal fur and feathers, strong soaps and perfume [3]. Around 300 million, people have asthma worldwide, it is likely that by 2025 a further100 million may be affected. There is a large geographical variation in asthma prevalence, severity, and mortality. While asthma prevalence is higher in high income countries, most asthma-related mortality occurs in low-middle income countries [4]. Globally, Asthma is ranked 16th among the leading causes of years lived with disability and 28th among the leading causes of burden of disease [1]. Nowadays, despite many advances in asthma diagnosis and treatment, the prevalence of controlled asthma is still low world-wide. It is reported that the level of asthma control is still less than expected [5]. Worldwide, Asthma is estimated that approximately 300 million people currently suffered to the disease each year [2]. In Bangladesh, asthma-related deaths in 2020 were reported at 8,893, accounting for 1.24% of all deaths. The death rate was 7.70 per 100,000 population, placing Bangladesh 74th globally. Although asthma is a worldwide problem, low- and middle-income countries bear the burden of the most severe cases [6]. Currently, data are lacking regarding knowledge on the self-management of asthma in adult patients. In many countries, including Bangladesh, the levels of asthma self-management are low in terms of both knowledge and practice. However, these can be improved through education, and supported asthma self-management has been shown to enhance

asthma control, reduce exacerbations and hospital admissions, and improve overall quality of life. [5]. Self-care management of asthma is crucial for disease control and has a positive impact on patient quality of life [7,8]. Self-care management of asthma is the strategy for asthma symptom control and future reduction of exacerbation, but it is poorly implemented in clinical settings due to the patients, professionals, and organization a related factor [9]. Self-care management of asthma is a behavior that is carried out independently by suffers to manage and control asthma symptoms to prevent exacerbations [10]. However, there was very limited information available about self-care management and there were few previous studies about self-care management in Bangladesh. Therefore, it is important to explore the level of Knowledge on Self-care Management among Asthma Patients at Public Hospital, Bogra of Bangladesh. This study aims to to assess the level of knowledge on self-care management among asthma patients attending the 250-bedded Mohammad Ali Hospital in Bogura, Bangladesh.

II. METHODOLOGY & MATERIALS

A descriptive cross-sectional study was conducted to assess the level of knowledge on self-care management among asthma patients. The study was carried out at Mohammad Ali District Hospital, a 250-bed public hospital in Bogura, Bangladesh, over a six-month period from January to June 2025.

The study population comprised all adult asthma patients admitted to the male and female medical wards during the study period. A total of 100 patients who fulfilled the eligibility criteria were included. The sample size was determined purposively from the admitted population, and participants were selected using a non-probability convenience sampling technique.

Inclusion and Exclusion Criteria

Inclusion criteria were: (i) patients admitted to Mohammad Ali District Hospital, (ii) patients clinically stable during the data collection period, and (iii) adults aged 18 years or older. Patients who were unwilling to participate or unavailable at the time of data collection were excluded.

Data Collection and Instrument

Data were collected using a structured questionnaire developed by the researchers following an extensive literature review. The instrument was prepared in English and translated into Bengali. It consisted of two parts: (i) socio-demographic characteristics (age, gender, religion, marital status, education, occupation, and monthly income), and (ii) knowledge on self-care management of asthma, which covered four domains—concept of self-care management (7 items), self-care practices (9 items), complications (2 items), and preventive measures (2 items). Each correct response was scored as one point, yielding a total of 20, which was then converted into percentages. Knowledge was graded as excellent (90–100%), very good (80–89%), good (70–79%), average (60–69%), and poor (<60%). Content validity was ensured through review by three academic experts, and revisions were made based on their feedback. Reliability was assessed through pre-testing with 10 asthma patients at a similar hospital, which confirmed clarity and internal consistency. Data were collected after obtaining informed consent, with the researchers administering the questionnaire directly to respondents. Confidentiality and anonymity were strictly maintained throughout the process.

Statistical Analysis

All collected data were entered and analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Socio-demographic characteristics of the study population, including age, gender, education, occupation, and income, were summarized using frequencies and percentages, while continuous variables such as age were expressed as mean ± standard deviation (SD). Knowledge regarding asthma self-care was scored by assigning 1 point for each correct response and 0 points for incorrect responses, with total scores converted into percentages for each participant. Domain-specific knowledge scores—covering the concept of asthma, self-management, complications, and prevention—were calculated as mean ± SD to identify areas of strength and weakness.

Ethical Considerations

Ethical approval was obtained from the Principal of Saic Nursing College and the hospital authorities. Written informed consent was obtained from all participants after explaining the study objectives. Confidentiality and anonymity were strictly maintained, and participants were informed of their right to withdraw at any stage.

III. RESULT

A total of 100 asthma patients were included, with a mean age of 42.5±11.2 years. The largest age group was 28–37 years (26.00%). Females (54.00%) slightly outnumbered males (46.00%). The majority of participants were Muslim (88.0%) and married (82.0%). Regarding education, half of the respondents had HSC

or above (50.00%), while 32.00% had primary education, 8.00% SSC, and 10.00% had no formal education. Occupationally, housewives constituted the highest group (40.00%), followed by business (32.00%) and service holders (18.00%), with 10.00% being unemployed. More than half of the respondents (56.00%) had a monthly family income between BDT 10,000–20,000 (Table 1).Table 2 showed that almost all respondents (98.00%) correctly identified asthma as a lung disease, and 90.00% recognized shortness of breath as a common symptom. However, knowledge gaps were evident: only 24.00% were aware of the types of asthma (controlling and preventive), 32.00% knew it can occur at all ages, and 40.00% recognized dietary/allergic disease as a risk factor. Knowledge about allergic food and air pollution (64.00%) and chest tightness during attack (62.00%) was moderate. The mean knowledge score in this domain was 58.6±21.3. Most respondents (98.00%) acknowledged medication as an effective management method, and 78.00% recognized the importance of education, medication, and caution as key components. Inhaler/nebulizer use (76.00%) and post-inhaler mouthwash (76.00%) were well known, while propped-up position (60.00%) and warm/liquid diet during attacks (38.00%) were less recognized. The mean knowledge score for this domain was 57.8±19.6 (Table 3). Table 4 presented that awareness of complications was generally low. Only 40.00% identified constant fatigue as an early complication, while 26.00% knew about cardio-respiratory failure as a late complication. The mean knowledge score was the lowest among all domains (33.0±12.4). 90.0% recognized mouthwash after steroid inhaler as a preventive measure against mouth sores, only 6.0% knew that regular health check-ups help prevent asthma. The mean score in this domain was 48.0±15.8 (Table 5). When knowledge levels were categorized, the majority of respondents fell into the "poor" category across domains: 60.0% for concept, 60.0% for self-management, 88.0% for complications, and 94.0% for prevention. Overall, 62.0% of respondents had poor knowledge, 18.0% average, 10.0% good, 4.0% very good, and only 6.0% excellent. The overall mean knowledge score was 54.6±17.5 (Table 6).

Table 1: Socio-demographic characteristics of the study population (n = 100)

Variables	Frequency (n)	Percentage (%)
Age (years)		
18–27	16	16.00
28–37	26	26.00
38–47	18	18.00
48–57	22	22.00
58–67	18	18.00
Mean ± SD	42.5 ± 11.2	
Gender		
Male	46	46.00
Female	54	54.00
Religion		
Muslim	88	88.00
Hindu	12	12.00
Marital Status		
Married	82	82.00
Unmarried	12	12.00
Widow	6	6.00
Education		
No formal education	10	10.00
Primary	32	32.00
SSC	8	8.00
HSC & Above	50	50.00
Occupation		
Service	18	18.00
Business	32	32.00
Unemployed	10	10.00
Housewife	40	40.00
Monthly Income (BDT)		
10,000–20,000	56	56.00
21,000–30,000	22	22.00
31,000–40,000	16	16.00
>40,000	6	6.00

Table 2: Knowledge regarding concept of asthma

Knowledge Item	Correct, n (%)	Incorrect, n (%)
Asthma is a lung disease	98 (98.00)	2 (2.00)
Types of asthma: controlling & preventive	24 (24.00)	76 (76.00)
Asthma can occur at all ages	32 (32.00)	68 (68.00)
Dietary/allergic disease is a risk factor	40 (40.00)	60 (60.00)
Allergic food and air pollution cause asthma	64 (64.00)	36 (36.00)
Shortness of breath is a common symptom	90 (90.00)	10 (10.00)

Chest tightness occurs during asthma attack	62 (62.00)	38 (38.00)
Mean ± SD	58.6 ± 21.3	

Table 3: Knowledge regarding self-management of asthma

Knowledge Item	Correct, n (%)	Incorrect, n (%)
Education, medication, caution are key components	78 (78.00)	22 (22.00)
Doctor is first to diagnose asthma	72 (72.00)	28 (28.00)
Peak expiratory flow/spirometry are diagnostic tools	10 (10.00)	90 (90.00)
Asthma can be managed by medication	98 (98.00)	2 (2.00)
Inhaler/nebulizer are effective treatments	76 (76.00)	24 (24.00)
Preventive and reliever are types of inhalers	12 (12.00)	88 (88.00)
Propped-up position is comfortable	60 (60.00)	40 (40.00)
Warm/liquid diet during attack	38 (38.00)	62 (62.00)
Mouthwash after steroid inhaler	76 (76.00)	24 (24.00)
Mean ± SD	57.8 ± 19.6	

Table 4: Knowledge regarding complications of asthma

Knowledge Item	Correct, n (%)	Incorrect, n (%)
Constant fatigue is an early complication	40 (40.00)	60 (60.00)
Cardio-respiratory failure is a late complication	26 (26.00)	74 (74.00)
Mean ± SD	33.0 ± 12.4	

Table 5: Knowledge regarding prevention of asthma

Knowledge Item	Correct, n (%)	Incorrect, n (%)
Regular health check-up prevents asthma	6 (6.00)	94 (94.00)
Mouthwash after steroid inhaler prevents mouth sore	90 (90.00)	10 (10.00)
Mean ± SD	48.0 ± 15.8	

Table 6: Level of knowledge across domains

Domain	Excellent 90–100%	Very Good 80–89%	Good 70–79%	Average 60–69%	Poor <60%	Mean ± SD
Concept of Asthma	8	12	20	0	60	58.6 ± 21.3
Self-Management	4	6	10	20	60	57.8 ± 19.6
Complications	12	0	0	0	88	33.0 ± 12.4
Prevention	6	0	0	0	94	48.0 ± 15.8
Overall Knowledge	6	4	10	18	62	54.6 ± 17.5

IV. DISCUSSION

Asthma continues to represent a substantial global health burden, particularly in low- and middle-income countries (LMICs) where health literacy, access to specialized care, and patient-centered education remain limited [11-13]. Although advances in pharmacological therapies and international guidelines have improved outcomes in many settings, the persistence of poor knowledge and inadequate self-care practices among patients is a key barrier to effective disease control [14]. Understanding patient knowledge is therefore essential, as it directly influences adherence to treatment, recognition of symptoms, and engagement in preventive measures [15]. In the present study, the majority of participants were middle-aged (28–57 years, 66%), married (82%), and predominantly Muslim (88%), with a slight female predominance (54%). Half of the participants had HSC-level education or higher (50%), while 42% had only primary education or less. Monthly income was generally low, with 56% earning 10,000–20,000 BDT. These demographics suggest that the study population represents typical patients in a public hospital setting in Bangladesh, where limited resources and variable educational backgrounds may affect health literacy. Previous studies indicate that higher education and income are positively associated with asthma knowledge and self-management behaviors, while lower socioeconomic status is linked to misconceptions and poor adherence [16]. In this study, the mean score for the conceptual knowledge component was 58.6, indicating a moderate level of knowledge regarding self-care management among asthma patients. This finding aligns with the study by Ahmed (2022), which reported that approximately one-third (32.0%) of patients demonstrated satisfactory knowledge of bronchial asthma, while 70.0% exhibited moderate understanding of persistent asthma [17]. Conversely, Elsadee et al. (2023) observed that 69% of patients had an unsatisfactory level of knowledge regarding bronchial asthma and its self-care management, which contrasts with the results of the current study [18]. Regarding specific aspects of asthma self-management, only 12% of respondents correctly identified the appropriate type of inhaler for asthma, while 88% answered incorrectly, indicating limited knowledge in this area. Notably, 98% of participants correctly acknowledged the importance of medication in asthma management, reflecting adequate awareness of pharmacological control measures. In the present study, only 40% of respondents correctly identified aspects of asthma complications, whereas 60% responded incorrectly, indicating a limited understanding of disease-related risks. Concerning preventive practices, including routine health check-ups, merely 6% of participants answered

correctly, while 90% provided incorrect responses, demonstrating inadequate knowledge of asthma prevention and self-management strategies. These results are consistent with Abbas et al. (2019), who reported suboptimal asthma control and substantial deficiencies in patients' understanding of preventive interventions and appropriate medication use, both of which are essential for effective self-management of the condition [8]. The overall findings of the present study demonstrated that the majority of respondents exhibited poor knowledge of asthma self-care management (62%), while 18% demonstrated average knowledge, 10% good knowledge, 4% very good knowledge, and only 6% excellent knowledge. These results highlight a substantial deficiency in understanding effective self-care practices among asthma patients. In a study conducted in Vietnam, Nguyen et al. (2018) reported that 80.5% of participants possessed poor knowledge of asthma self-management, 16.2% had adequate knowledge, and only 0.3% demonstrated good knowledge [5]. Similarly, Kaur et al. (2019) observed that in a North Zone tertiary care center, over 10% of patients had poor knowledge, approximately 64% had moderate knowledge, and 25% demonstrated good knowledge, indicating persistent gaps in self-care awareness among patients [19]. Among the respondents, 4% demonstrated very good knowledge of asthma, predominantly individuals residing in urban areas, aged 32–38 years, with higher secondary education, a history of bronchial asthma of 8 years, and a monthly income exceeding 31,000 BDT. These participants exhibited comprehensive understanding of asthma concepts, management strategies, complications, and preventive measures. Conversely, 62% of respondents displayed poor knowledge, primarily from rural areas, with most having only primary education or no formal schooling. Females were slightly more affected than males (54% vs. 46%), and the majority had a monthly income of 10,000–20,000 BDT. Overall, higher knowledge correlated with improved self-care management, underscoring the critical need for targeted health education to prevent and control asthma exacerbations.

Limitations of the study:Every hospital-based study has some limitations and the present study undertaken is no exception to this fact.

1. The study findings can't represent the total patients of this hospital only 100 patients included in the study.
2. Data collection procedure was conducted for two days only from the respondents as well as impact on result accuracy and validity
3. There were limited sources to carry out the research like as relevant books, Bangladeshi literature, journals, magazines and other sources were not available for conducting the study properly
4. A convenience sample is the limitation in generalization and inference making about the entire population to know asthma.

V. CONCLUSION AND RECOMMENDATIONS

Asthma remains a significant public health challenge, and the present study demonstrates that knowledge of self-care management among patients in Bangladesh is inadequate. More than half of the respondents (62%) demonstrated poor knowledge across key domains, with only a minority exhibiting good to excellent understanding. Educational attainment appeared to influence knowledge, as higher education was associated with better awareness of self-care practices. These findings highlight critical gaps in patient literacy that may contribute to poor disease control, morbidity, and healthcare burden. Targeted health education and structured awareness programs, particularly within hospital and community settings, are urgently needed to strengthen patient self-management capacity and ultimately reduce the impact of asthma in resource-limited contexts.

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