

## The Incidence In Rheumatic Fever in Age 5-15 Age Group Bangladesh

M. E. Haque<sup>1\*</sup>, M. M. Abdus Shamim<sup>2</sup>, Abdullaha- Al-Faroque<sup>3</sup>, Nazrul Islam<sup>4</sup>,  
Sufia Rahman<sup>5</sup>, Ashraful Kabir<sup>6</sup>

<sup>1</sup>Professor, Department of Medicine & Cardiology, Gazi Medical College, Khulna, Bangladesh.

<sup>2</sup>Assistant Professor, Department of Cardiology, Gazi Medical College, Khulna, Bangladesh.

<sup>3</sup>Assistant Professor, Department of Pathology, Gazi Medical College, Khulna, Bangladesh.

<sup>4</sup>Professor, Cardiology, National Institute of Cardiovascular Diseases, Dhaka, Bangladesh.

<sup>5</sup>Professor, Cardiology, National Institute of Cardiovascular Diseases, Dhaka, Bangladesh.

<sup>6</sup>Assistant Professor, Respiratory Medicine, Gazi Medical College, Khulna, Bangladesh.

### ABSTRACT

**Introduction:** In developing country like Bangladesh rheumatic fever is common diseases occur in children.

**Objective:** In this study our main goal is to evaluate the incidence in rheumatic fever in age 5-15 age group Bangladesh.

**Method:** This cross sectional study was done at different private hospital in Khulna district from January 2016 to January 2017 .where 100 patients data were recorded methodically in a preformed data sheet.

**Results:** In the study 71% patients' mother was illiterate and most of them were house wife. Also, most of the patients faced serious heart damage.

**Conclusion:** We can conclude that, overcrowding and low attainment of education by mothers is responsible for incidence of RF in children. Further study in needed for better outcome.

**Keywords:** Rheumatic Fever, Streptococcal Infection, Rheumatic Heart Disease.

### \*Correspondence to:

**Dr. M. E. Haque,**  
Professor,  
Department of Medicine & Cardiology,  
Gazi Medical College, Khulna, Bangladesh.

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### INTRODUCTION

Rheumatic fever (RF) is an inflammatory disease that can contain the heart, joints, skin, and brain. The disease classically develops two to four weeks after a streptococcal throat infection. Signs and symptoms contain fever, multiple painful joints, involuntary muscle movements, and occasionally a characteristic non-itchy rash known as erythema marginatum. The heart is involved in about half of the cases. Damage to the heart valves, recognized as rheumatic heart disease (RHD), usually occurs after repeated attacks but can sometimes occur after one. The damaged valves may result in heart failure, atrial fibrillation and infection of the valves.<sup>1-3</sup>

Rheumatic fever may happen following an infection of the throat by the bacterium *Streptococcus pyogenes*. If the infection is untreated rheumatic fever can occur in up to three percent of people. The underlying machinery is believed to involve the production of antibodies against a person's own tissues. Due to their genetics, some people are more likely to get the disease

when visible to the bacteria than others. Other risk factors contain malnutrition and poverty. Diagnosis of RF is often based on the incidence of signs and symptoms in combination with sign of a fresh streptococcal infection.<sup>4,5</sup>



Figure 1: Symptoms of Rheumatic fever (RF)

Internationally, the occurrence of rheumatic fever (RF) and rheumatic heart disease (RHD) has declined sharply but, in emergent countries, RF is still a principal cause of heart disease and, consequently, death in children and young adults. The frequency of RF among children aged 5-15 years in rural Bangladesh was 1.2. In this study our main objective is to evaluate the incidence in rheumatic fever in age 5-15 age group Bangladesh.<sup>6-9</sup>

**OBJECTIVES**

**Main Objective**

- To evaluate the incidence in rheumatic fever in age 5-15 age group I Bangladesh.

**Special Objective**

- To detect demographic characteristics of patients parents.
- To identify common symptom of rheumatic fever.

**METHODOLOGY**

**Study Type**

This was a cross sectional study.

**Study Place and Period**

This study was conducted from January 2015 to January 2016 at different private hospital in Khulna district.

**Method**

During the study 100 patients' data on the present state, diagnosis, and hospital-records were collected using a structured data-extraction form. RF was diagnosed based on the modified Jones criteria. Primary data were collected by face-to-face interview of the patients by trained medical graduate research assistants during the period of hospital stay. Information regarding risk factors and risk behavior was inquired with an effort to minimize the recall bias. After that the protocol received ethical clearance from Bangladesh Medical Research Council.

**Statistical Analysis**

All data was recorded methodically in a preformed data sheet and was analyzed by relevant statistical procedures with the windows software version 12.0. The prevalence rates of hypertension were determined by simple percentage. Unpaired t-test, chi-square tests were done to see the level of significance. All associations were tested by co-relation coefficient (r). Binary logistic regression was used to quantify the individual risk prediction of hypertension with different independent risk factors. All statistical test were considered significant at the level of 95% (p<0.05)

**RESULTS**

In table-1 shows age distribution of the patients where most the patients belong to 10-15 age group. In figure-2 shows gender distributions of the patients where 89% were female, which is 78% higher than male. In table-2 shows demographic characteristics of patients parents where 71% patients' mothers were illiterate and most of them were house wife.

In figure-3 shows distributions of patients according to living area where most of them were rural. In figure-4 shows common symptom of rheumatic fever, where most the patients had sore throat and fever. In table-3 shows living conditions and oral health of the patients where 25% people used tube water and 85% patients used tooth paste.

In figure-5 shows complications of rheumatic fever the patients where most of the patients faced Serious heart damage, causes

rheumatic hart diseases. Followed by Sydenham chorea, scarlet fever, strep throat. In table-4 shows distributions of ICU support of the patients where 21% needed ICU support. In figure-6 shows survival and death rate of the patients where most of them were survived, only 20% patients were dead.

**Table-1: Age distribution of the patients**

Age group	%
5-9 year	31%
10-15 ears	69%

**Table-2: Demographic characteristics of patients parents**

Variable	%
<b>Education status of patients mother:</b>	
Secondary and above	9%
Primary or less	10%
Illiterate	71%
<b>Education status of patients father:</b>	
Secondary and above	54%
Primary or less	43%
Illiterate	3%
<b>Occupation status of patients mother:</b>	
Housewife	12%
Working mother	88%
<b>Occupation status patients father:</b>	
Labour-intensive job	28%
Moderate-activity job	30%
Sedentary-activity job	42%

**Table-3: Living conditions and oral health of the patients**

Variable	%
<b>Wall material:</b>	
Semi-pucca	36%
Pucca/brick	64%
<b>Water supply:</b>	
Supply or surface water	75%
Tubewell/groundwater	25%
<b>Bed:</b>	
Khat	89%
Floor	11%
<b>Dentifrice:</b>	
Conventional	15%
Toothpaste	85%
<b>Brush after meal:</b>	
Yes	27%
No	73%

**Table-4: Distributions of ICU support of the patients**

Variable	%
<b>Need ICU support</b>	21%
<b>No need any ICU support:</b>	
Prescribed by doctor:	48%
Only Hospitalization:	69%

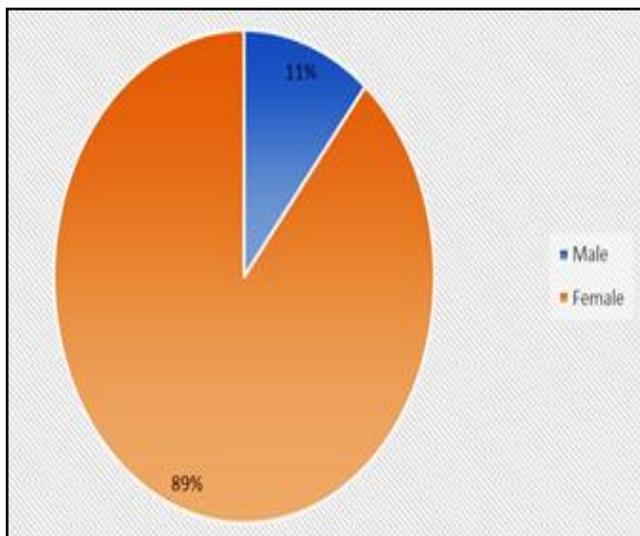


Figure-2: Gender distributions of the patients.

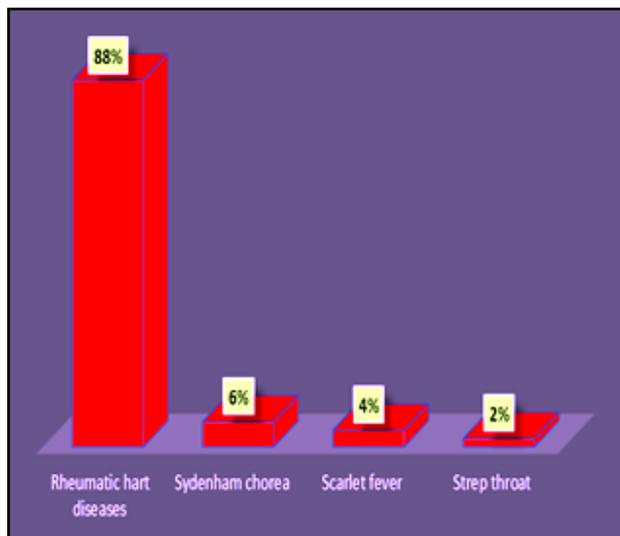


Figure-5: Complications of rheumatic fever the patients.

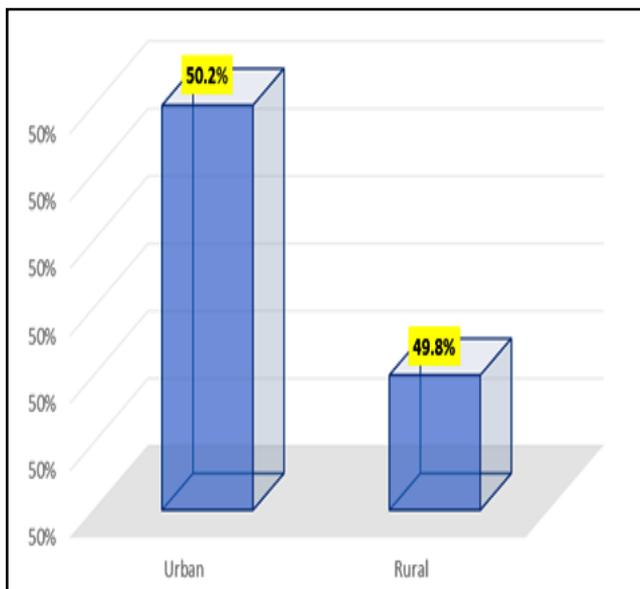


Figure-3: Distributions of patients according to living area.

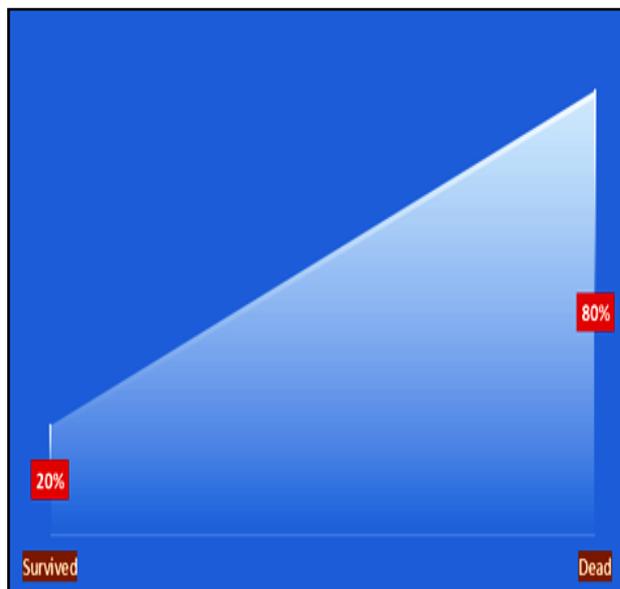


Figure-6: Survival and death rate of the patients

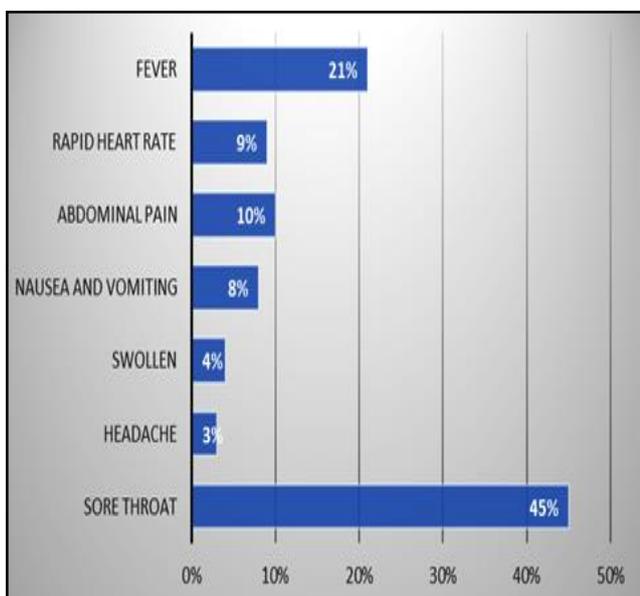


Figure-4: Common symptom of rheumatic fever.

**DISCUSSION**

In the present study, some socioeconomic, behavioural and environmental factors were found to play an essential role in altering the risk of people for developing RF. About one-third of RF patients may not present any history of throat infection and may have negative cultures; there is usually an antibody response.

Epidemiological studies, have confirmed the associations between streptococcal infection and subsequent RF. Still; there are numerous other factors that may alter the people's risk for emerging the disease. Those factors may essentially operate through growing the risk of throat infection, or through any other mechanisms that are beyond the scope of the current study. Our data confirmed that we found that RF mostly occurs in 10-15 age group and mostly women are at a greater risk. Which is similar to other study.

In the study we found that most of patients were from urban and most of the people are likely to live in *pucca* houses. However, there must be a common factor that grows the risk of RF. This is

quite similar to other report. It may also point toward overcrowding. Contrary to the finding, sharing a room by more than three persons was not a significant predictor of RF, rather it was quite the reverse. A larger family-size seemed as a protective factor.

During the study another big factor is the education of mother. We noted that most RF patients are mothers with little or no education. Education is expected to enable mothers to provide quality care proficiently. Other study was supported our findings.

In the study We inquired about living condition and have done meticulous calculation of the lifestyle factors to see any possible association with these factors with RF risk.

Developing countries are experiencing RF as a public-health issue now what developed countries faced earlier in the past century. The recognized risk factors faced by the industrialized countries were: poverty, overcrowding, and reduced access to medical care. Nearly a comparable risk factor was unveiled in the present study. In many parts of urban area, rapid industrialization has brought a population shift from rural to urban areas, leading to almost congested slums. This explains why the urban people are more prone to RF. Socioeconomic status was thought to have an effect on the epidemiology of acute RF. Between 1862 and 1962 in Denmark, the occurrence of acute RF fell with the concomitant rise in the standard of breathing. A Serbian study recognized the low educational level of mothers and home dampness as risk factors. In the same study, unemployment of parents and overcrowding were not meaningfully related with acute RF. Though, our data support important association of overcrowding with RF risk. Children of working mothers in the study were found to be at greater risk of both RF. In our culture, the employment status of mothers is not necessarily considered for economic allegation; it is rather well-thought-out in line with care for babies.

Oral health and its maintenance practice have been examined for its possible link to the RF risk. As surrogate for oral health, the use of dentifrice (toothpaste), practice of brushing after meal were examined. Between the factors considered, not brushing after meal seemed as the significant predictor, although tooth-brushing practice and the number of brushings did not appear as significant risk factors of RF. Which is similar to other study.<sup>9</sup>

#### LIMITATION

Short sample size and limited period of time.

#### CONCLUSION

After many examinations, we can conclude that, overcrowding and low attainment of education by mothers is responsible for incidence of RF in children. Further study is needed for better outcome.

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